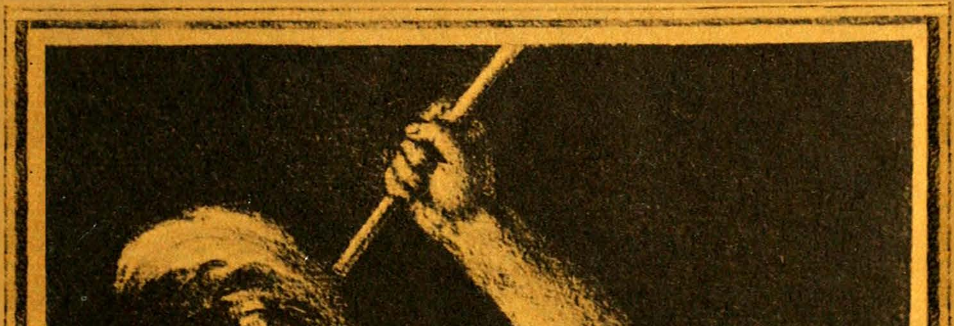
PAPERS

OF THE

BRITISH SCHOOL AT ROME



VOL VI. No. 1 1913

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EXCAVATIONS IN 1908–11 IN VARIOUS MEGALITHIC BUILDINGS IN MALTA AND GOZO.

BY THOMAS ASHBY, D.LITT., F.S.A., R. N. BRADLEY, B.A.,
T. E. PEET, B.A., AND N. TAGLIAFERRO, I.S.O.

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INTRODUCTION, BY T. ASHBY.

THE present report deals with excavations which have been spread over a considerable period of time, and is the work of various hands. For the greater part of the introduction, and for sections I., III., V., VII., IX. XIII., I am myself responsible; the note on the affinities of the Maltese pottery, and sections II., IV., VI., X., XII., are the work of Mr. T. E. Peet; section VIII. of Professor N. Tagliaferro, I.S.O.; and section XI. of Mr. R. N. Bradley. The difficulties of correcting the MSS. and plans, at some distance of time and space, have not been inconsiderable.

I am in duty bound to express our obligations to the Government of Malta for its kindness in welcoming the co-operation of the School, and for its public spirit in carrying on the excavations at its own expense. Obligations of a more personal nature have also to be recorded—to the past and present Governors of Malta, Lieut.-General Sir H. F. Grant, G.C.V.O., K.C.B., and General Sir H. M. Leslie Rundle, G.C.B., K.C.M.G., G.C.V.O., D.S.O.; to the former Lieut.-Governor, Sir E. M. Merewether, K.C.V.O,

C.M.G., and most of all to the Hon. E. P. S. Roupell, D.S.O., now Postmaster-General of Malta, for unfailing kindness and assistance in every way.

Prof. T. Zammit, C.M.G., the Curator of the Museum, has throughout taken the warmest interest in the work. His thorough knowledge of the islands has been of the greatest help to us, and we have always been relieved by him of all difficulties of a local nature. Those who know Malta are aware what a debt Maltese archaeology owes both to him and to Professor Tagliaferro, who is also a member of the Museum committee; and both of these gentlemen are among the Associates, *honoris causa*, of the School. The help of Mr. R. N. Bradley and of the Rev. A. W. Dawes, C.F., must also be gratefully acknowledged; and it is fully hoped that the friendly connexion between Malta and the School will be kept up in the future by the continuance of similar researches.

As a field of archaeological investigation, Malta offers special attractions to this School. As the nearest of the few British possessions in the Mediterranean, it is an appropriate outlet for its archaeological energies; and it is fortunate that the Government of Malta, with a public spirit which does it the greatest credit, is active in the investigation of its monuments, and has recently passed a law for their better preservation and protection. Malta has remains of the neolithic, Phoenician, and Roman periods. So far, however, the excavations and researches in which the School has had the advantage of co-operation with the Maltese Government (which has in all cases borne the expense of excavation), have been concerned almost entirely with the first of these.[1]

The island of Malta is about sixteen miles long from N.W. to S.E., and seven or eight miles broad. It is distinctly hilly, and slopes up gradually from the S.E. and E.; thus, Krendi is some 320 feet above sea level, while the highest point of the Bingemma hills rises to 728 feet on the way between Notabile and Bahria; while near the village of Dingli the eleva-

[1] The only good general account of these remains is that of Dr. Albert Mayr (*Die Vorgeschichtlichen Denkmäler von Malta*, in *Abhandlungen der Bayerischen Akademie der Wissenschaften*, Kl. I. vol. xxi. (1901), pp. 647 *sqq.*). It was fully reviewed by Colini in *Bull. Palet. Ital.* xxviii. (1902), 204 *sqq.*; and was translated and amplified in 1908, and privately printed, with the plans, but without the photographs which are given in the original, under the title of the *Prehistoric Remains of Malta* (117 pp.). The paging of the two works is so widely different that they can be, as a rule, cited together without risk of confusion, *e.g.* in footnote 2 of the following page and *passim*. Where a distinction is necessary they are cited as *V.D.* and *P.M.* Dr. Mayr has since published a work of a more general character, *Die Insel Malta in Alterthum* (Munich, 1910), cited as *I.M.*

tion of over 800 feet is reached. The coast is for the most part rocky, but the island has one harbour of the first class—or rather two harbours together, one on each side of the plateau on which Valletta stands—the Grand Harbour on the S.E., and Marsamuscetto on the N.W.; there are also other harbours—Marsa Scirocco, and the smaller Marsa Scala—in the same part of the island; while at the N. end are St. Paul's Bay and the bay of Mellieha, and other smaller bays between them and Marsamuscetto. On the S.W. the coast is mostly steep, except at the N.W. extremity, opposite to the bays just mentioned; but there is possible landing for small boats at various points.

There are three main groups of megalithic buildings belonging to the neolithic period,[1] all in the S.E. half of the island—the three buildings on the hill of Corradino, (the real name is Cortin or Cordin) above the innermost portion of the Grand Harbour, which will be described below, together with the hypogeum of Hal Saflieni, which was approached through a megalithic building, originally standing above the ground level, but now almost entirely destroyed.[2] Hal Saflieni was an enormous ossuary, in which the remains of thousands of persons were deposited.

Then there is the group at the S.E. extremity, near the Bay of Marsa Scirocco—the fortified village, as it seems to be, of Borg-en-Nadur,[3] on a ridge overlooking the bay, and the ruins of S. Maria tal Bakkari, two miles or so to the S.W., and not far from the S. coast of the island, which have not yet been investigated by us.

The third group, the most important, is that formed by Hagiar Kim and Mnaidra, which are situated within a quarter of a mile of one another, to the S.W. of the village of Krendi, not very far from the middle of the S. coast of the island, the former some 400 feet above sea level, the latter about 150 feet lower.

The settlement at Bahria (*Papers* v. 149 *sqq.*) occupies so far a place by itself, though Mr. Peet has picked up pottery of the Bahria type at Borg-en-Nadur, and it has been found at other sites also (*infra*, 126).

[1] It is probable that the neolithic period lasted on relatively late in Malta.

[2] See T. Zammit, *The Hal Saflieni Prehistoric Hypogeum at Casal Paula, Malta*, First Report (Malta, 1910), especially pp. 6, 32; N. Tagliaferro, *The Prehistoric Pottery found in the Hypogeum at Hal Saflieni* in *Annals of Archaeology and Anthropology* (Liverpool), iii. (1910) 1 *sqq.*; Mayr in *Zeitschrift für Ethnologie*, 1908, pp. 536 *sqq.*; T. Zammit, T. E. Peet, and R. N. Bradley, *The Small Objects and the Human Skulls found in the Hal Saflieni Prehistoric Hypogeum*, Second Report (Malta, 1912).

[3] Mayr, 687, 61.

The adjacent island of Gozo has less than half the area of Malta, measuring some eight miles from E. to W., and four and a half miles from N. to S. The highest ground in the island is the hill of Ta Dibiegi, in the W. part (620 feet), but the contours are much more irregular than in Malta, there being many isolated hills separated by deep valleys; while the coast is abrupt almost all round, so that landing places are few, and none of them, except that of Mgiarr on the E., are well protected. There are two main groups of megalithic ruins, both in the eastern half of the island—the northern, formed by the Gigantia and Torri ta Santa Verna, on the hill of Xaghra or Casal Caccia, not far from which is the menhir of Hajra-ta-Sansun, and the southern, composed of the ruins at Xeuchia, with It-Torri-tal-Mramma and Ta-Cenc to the S. of it, and Tal-Kaghan to the N.E. Near Kala, at the eastern extremity of the island, is an isolated menhir called Hajra-wiekfa (Caruana in *Arch. Journal*, liii. (1896) 142). In the western half of the island no such remains have been recorded. Caruana mentions megalithic remains in the valley of S. Dimitri (Mayr, 696, 74) but I have neither seen nor heard of them.

Of the former group, the Gigantia had been already in the main excavated in 1827, and was accurately described by Della Marmora shortly afterwards (*Nouvelles Annales publiées par la section française de l'Institut Archéologique* i. (1836) 1 *sqq.*: the later bibliography is given by Mayr, 647, 4,) but it awaits further study; while Torri ta Santa Verna was cleared last year (*infra*, 105); and Hajra-ta-Sansun is described by Caruana and Mayr (*Archaeol. Journal cit.*, and Pl. ii. Fig. 2; 696, 73). Turning to the latter, It-torri-tal-Mramma and the ruins of Tal-Kaghan are adequately described by Mayr (close to the latter is the stone circle of ta-Mresbiet) though both of them require further investigation; and I think that he is wrong (655, 694; 15, 71) in dividing the remains at Tal-Kaghan into two parts, as it seems to me to be a fortified settlement upon a low hill; but this cannot be determined without excavation.

The remains at Xeuchia have unfortunately been entirely destroyed, and the only record of them is in the late Father E. Magri's report (*Ruins of a Megalithic Temple at Xeuchia* (*Shewkiyah*) *Gozo*, Malta, 1906) and in some photographs preserved at the Valletta Museum. The authorities quoted by Magri show that remains of a megalithic building had been known on the site since the time of Abela (1647) i. 10 § 5: but he was able to find only the floors of two of the chambers, made as usual of fragments

of limestone pounded hard (torba) resting on a layer of small stones, and a considerable quantity of neolithic pottery.

Near It-Torri-tal Mramma are other megalithic remains on the N. edge of the plateau, photographed by Magri, but never properly described, and barely mentioned by Mayr (679, 48). They bear the name of Id-Dura Tax-xaghra il cbira. Further E. are other possible megalithic remains: but the natural rock formation is very deceptive, so that it is not certain whether what seem to be ruins may not be due to nature.

The islet of Comino, situated between the two larger islands, may well have been inhabited in prehistoric times. Some fragments of pottery which had been collected for making *difûn*, or pounded pottery concrete for the flat roofs of houses (a use for which prehistoric pottery is unluckily found to be well adapted, so that it is eagerly collected by the peasants who meet with it in the course of cultivation) brought from there in October 1908, were similar to those found in and about the megalithic buildings of the Maltese group (I think I may safely say that pottery of this period has been collected, without excavation, at all the sites I have mentioned, except at the dolmens). But in the course of a day's digging in June, 1911, when trial trenches were made in various parts of the islet, I was unable to find any such pottery *in situ*, nor traces of huts or buildings of any sort. A burial under the split halves of two amphorae was, however, found in 1912, but this must have belonged to either the Punic or the Roman period (*Annual Report of the Curator of the Valletta Museum*, 1911–2, § 13).

It is important that we should keep before our minds the natural features of the islands in studying the distribution of these megalithic ruins. All are situated on high ground, with an extensive view, in places not too easily accessible against the will of those who occupied them.

What are these buildings, and to what period do they belong? Until quite recently they were attributed to the Phoenicians: but there is now no doubt that they are to be assigned to the end of the neolithic age, or to the very beginning of the 'eneolithic' period or age of metals (cf. p. 3, n. 1). This is clear from the character of the pottery, from the entire absence of metal among the objects which have been found in them, and from their affinities to other structures in the western Mediterranean.

As to their object, they seem to have been in part sanctuaries, in part dwellings, the original portion of the building (where traces of the double

purpose are found) being generally that devoted to sacred uses, so far as we can tell. The Maltese sanctuaries have a very distinct and typical plan, which is seen in its elementary form, twice repeated in each case, at the Gigantia and at Mnaidra.

Two oval areas were constructed side by side: the entrance was in the centre of one of the long sides, and the passage connecting them was placed in the same straight line with it, and so was also the most important niche in the whole building—the Holy of Holies, as it were. The apses were certainly roofed, and it is indeed possible that the whole of the oval areas was covered. Mayr (681, 51) rejects the idea entirely; but Colini (p. 219) does not agree with him. There are other dolmenlike niches in other parts of the building, the coverslabs of which are often supported in the centre by stone pillars, undoubtedly venerated as *baetyli*; such pillars also were often placed in these niches, without actually forming part of their construction, cf. Evans in *J. H. S.* xxi. (1901) 196 *sqq.*; but the characteristic form is not, as he says on p. 198, the pillar tapering towards the base, but rather the pillar which narrows in the centre and widens out again at the extremities. In one case at Mnaidra (*infra*, p. 95 and Fig. 15) the pillar assumes an exceptional form. Imitations of these pillars in terra cotta have been found at Corradino, Hagiar Kim and Mnaidra (*infra*, 51, 89, 103). The form of the niches is possibly derived from the dolmen, the original form of the tombs of the heroes who were worshipped in these sanctuaries: and hence the prominence given to the large coverslabs (Mayr, 684, 58). By a further development of this idea, isolated stone tables were used, it seems, as objects of worship. Such stone tables are found in the Balearic Isles, but are of far larger size—the foot is as much as 2·50 m. high in one case (Bezzenberger, *Vorgeschichtliche Bauwerke der Balearen* in *Zeitschr. f. Ethnologie*, 1907, p. 606).

The window-like openings in vertical slabs, which are met with frequently in these buildings, and often serve to give access from one part to another, are probably dolmenic in origin.

The façade was always curved, and in front of it, as recent excavations have shown, there was an elliptical paved area, delimited by a stone edging curving in the opposite direction.

It will be observed that in the Gigantia the plan which I have described is duplicated—there are two buildings of this nature side by side. Mayr asserts (654, 13) that they were erected at the same time, inasmuch

as they have a common façade, and a common enclosure wall: and this is very likely correct in this particular case.

Hagiar Kim originally, Mayr thinks, consisted of one such building, A and B: at a later period the left hand apse of B was broken through, and the niche at the further end of B opened, and turned into a passage way. To this, he thinks, was added a similar building facing the other way, of which I alone remains, the rest having disappeared in the course of alterations. I shall return to this point later.

In Mnaidra we see a similar plan: but there there is not a common façade, and the difference of date is undoubted, as I shall explain.

The southern building on the hill of Corradino, excavated in 1909, was also, it seems to me, in part a sanctuary, though we do not find the typical arrangement in its entirety; while portions of the building were apparently devoted, at a later period at any rate, to domestic uses, as is shown by the existence of the trough in D (*infra*, 42). We have, however, the curved façade, with its lower part formed of orthostatic slabs, enclosing the paved frontal area, and the dolmenic niches so characteristic of these buildings.

Hal Saflieni, the hypogeum a little to the S.W. of the hill of Corradino, under the village of Casal Paula, occupies a unique position. Above ground there was a megalithic edifice, now unluckily destroyed, though its plan has been in part recovered: this led to a series of underground chambers, partly of a sacred character—note the elaborate architecture, and the imitation of the dolmenic niches and roofed apses of the megalithic buildings—and partly ossuaries. The enormous number of dead buried here is shown by the utter dispersal of the bones, and by the fact that in a cubic meter of earth no less than 119 right and left *patellae* (knee pans) were found, whereas only about twelve bodies could have been placed whole in such a space. We can hardly suppose that this was the only hypogeum of the sort in the island, and one is always on the lookout for another.

Torri ta Santa Verna is so much ruined that its original plan is not easy to make out (*infra*, 106); while It Torri tal Mramma and the two smaller buildings on the Corradino Hill may have wholly or in part served as dwellings.[1]

Though we may well admit that the *baetyli* represented the heroes

[1] For the round towers, cf. *infra*, 123. The age and object of the small bell-shaped pits cut in the rocky shore of the bay of Birzebbugia, not far from Borg-en-Nadur (Mayr 698, 76), must be treated as quite uncertain. Nor has the interesting problem of the age of the cart-ruts which appear on the coast here and there yet been solved (Mayr, 679, 48).

who were worshipped in these sanctuaries, I do not think that it is possible to accept the idea of Evans that these monuments 'served, in part at least, a sepulchral purpose' (p. 200); and Mayr (*P.M.* p. 53 *sqq.*) seems also to be doubtful.

The discovery of a human skull and a few bones at Hagiar Kim proves little, for they seem to belong to a somewhat recent period (*P.M.* p. 56, note*[1]), and I have not detected human remains anywhere[2] except for another recent burial at Corradino (*infra*, 41) and the five burials at Torri ta Santa Verna, which, while apparently belonging to the neolithic age, must be attributed to the latest phase of the existence of the building (*infra*, 110).

Evans wrote, it must be remembered, before the discoveries of the last few years had taught us anything of the mode of burial practised by the race which erected these neolithic monuments.

Prof. Tagliaferro has discovered two isolated dolmens in Malta. One lies to the north of Hagiar Kim, between Siggiewi and Krendi, in a field situated at Misrah Sinjura, on the south of the road between these two places (Pl. I. Fig. 1). 'It consists of a roughly hewn table stone of an average length of 4·30 m., width 3·80 m., and thickness varying from 0·60 to 0·15 m. The huge table stone is supported on three sides at a height of 1·25 m. from the ground by an irregular wall formed of five rows of big unhewn stones.[3] The superposed enclosure is of modern construction.'[4] The other (Pl. I. Fig. 2—Fig. 1 in the text shows the other side of it) is situated 'at a place called Ix-Xaghra ta fuq Wied Fîlep, between Musta and the small church of Santa Margherita, at a distance of about fifty yards from the military

[1] Vance notes (*Archaeologia* xxix. (1842), p. 230) that the bones found in great quantities among the rubbish were of small animals—sheep, lambs, or even birds; there were, however, some belonging to a larger species of carnivorous quadruped, as also a few human remains, but nothing is said as to the situation in which they were found. Furse says (*Transactions of the International Prehistoric Congress of* 1868 *at Norwich*, p. 416): 'It is true that the only human remains found among the ruins of Hagiar Kim were the skull and some of the bones of a skeleton recognised as that of an Ethiopian.'

[2] I have carefully examined, in company with Professor Zammit, the 'small rock chambers hewn in the precipitous sides of a narrow ravine [in the Binjemma hills, close to the church] which resemble very closely both the rock-hewn tombs of S. E. Sicily (Orsi, in *Bull. Paletn. Ital.* xvii. (1891) pp. 59, 71) and those of Chaouach near Medjez el Bab in Tunis,' described by Myres in *Man*, i. (1901) No. 71. I could only find one tomb of this small size, among a group of what seemed to be loculi of the Christian period; nor could I see any remains of prehistoric pottery there, though Myres found some specimens.

[3] Compare the dolmen of Sos Monumentos (*infra*, p. 138).

[4] Tagliaferro in *Daily Malta Chronicle*, 11th March, 1909, p. 2.

road leading from Musta to San Paul ta 't Targia [in the centre of the north-eastern portion of the island. It bears the name of Il ghirna tal Blâta]. . . . It consists of a huge rectangular roughly hewn stone 3·80 m. long, 1·50 m. broad, and of a thickness varying from 0·45 to 0·60 m. It is supported at an average height of 1·58 m. from the ground by four formless rude stones of nearly the same height, three of which are situated at the angular points of the table-stone and the fourth near the middle of its longer side. . . . . The table belongs to a layer of lower limestone 0·60 m. thick overlying the layer of hard stone which forms the bed of the bare plain facing the Musta fort on the opposite side of the ravine. It appears as if it had been a naturally separated portion of the layer mentioned above, displaced a few feet from

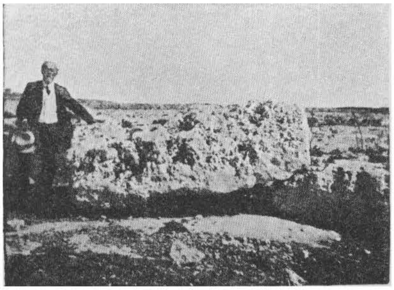


FIG. 1.—DOLMEN NEAR MUSTA.

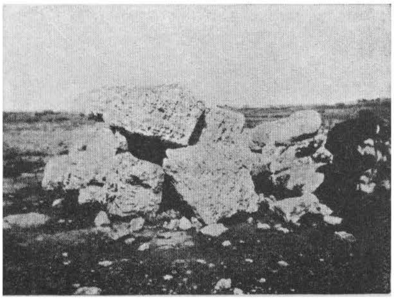


FIG. 2.—DOLMEN NEAR MUSTA.

its original position and raised, by what means it is impossible to guess, to a height of a little more than 1·50 m. above the ground.'

In neither case was there enough earth preserved on the rock to make excavation of any use: but it seems improbable that these dolmens were other than tombs. Prof. Tagliaferro, however, notes that 'rock tombs exist in the vicinity between the dolmen (near Santa Margherita) and the Church, and several other existed on the other side of the ravine, at the place where the Musta fort was built, but were destroyed during the erection of that fort. On the same occasion was also destroyed an important megalithic wall 50 feet long'[1] . . . He also mentions 'another dolmen in the immediate vicinity of the former, but of smaller dimensions and much deteriorated' (Fig. 2).

[1] A model of it was made by Petit-Radel, and is among the models of Cyclopean walls in the Mazarin Library at Paris (Mayr, 696, 73).

In Gozo too, there is a dolmen called Id-Dura tal Mara at Ta-Cenc, near It-torri-tal Mramma, which was seen and photographed by Magri, but is not noticed by Mayr. The cover stone (Fig. 3) measures 2·25 m. by 1·80 by 0·45 thick: the standing stone under the man is 0·90 high.

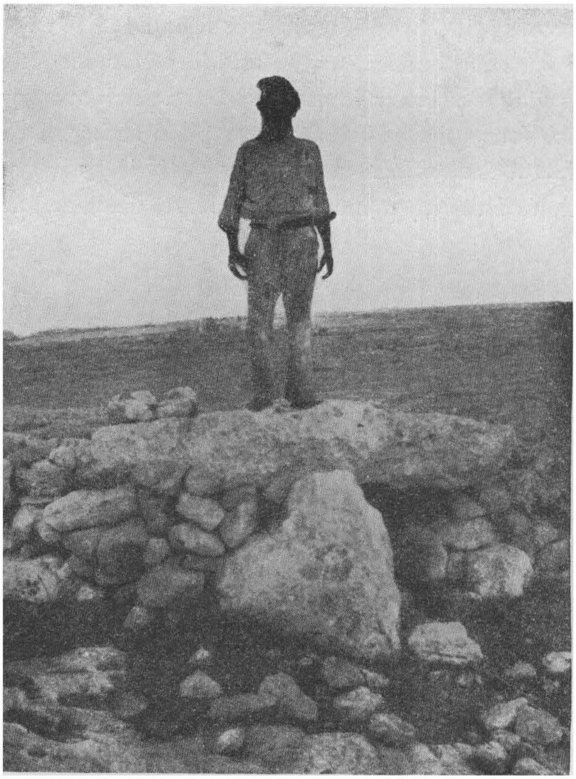


FIG. 3.—DOLMEN CALLED ID-DURA TAL MARA, GOZO.

The walling of small stones seen to the left is here probably modern, as the orthostatic slabs are preserved almost all round the circuit.

The niches in the megalithic buildings of Id-Dura Tax-xaghra il cbira (Fig. 4) and It-torri-tal-Mramma (Fig. 5) are entirely dolmenic in type.[1] Both these buildings are of a very primitive character, but the pottery

[1] In Fig. 4 the upright stone on the left of the picture is 0·80 m. high, and the slab measures 1·75 m. from front to back, and is 0·43 thick; while in Fig. 5 the slab measures 2·70 m. by 1·50 by 0·30 thick, and the opening under it is 0·80 m. wide and 0·55 m. high; the walling of smaller stones seen on each side of it is probably ancient.

picked up at the latter is of the usual type; while at the former there is no soil, but only the bare rock.

A neolithic 'tomba a pozzo' was found for the first time in Malta in November 1910, in laying water-pipes in a road at Bukana, near Attard, in the centre of the island. It was described by Prof. T. Zammit in the *Times* (13th Dec., 1910) and in the *Annual Report of the Curator of the Valletta Museum* for 1910–11, p. 3; the latter account is reproduced here with some curtailments. Before the discovery was announced, more than one half of the tomb had been destroyed. 'What remained of the tomb was cleared with all possible precaution. The well tomb was bell shaped, beginning in a straight oblong shaft, but becoming wider towards the bottom. The

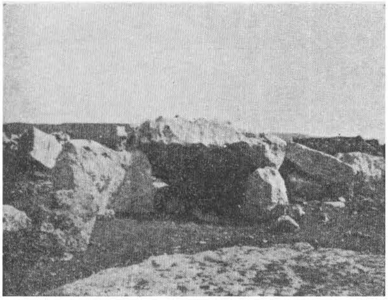


FIG. 4.—DOLMENIC NICHE, ID-DURA TAX-XAGHRA IL CBIRA.

FIG. 5.—DOLMENIC NICHE, IT-TORRI-TAL-MRAMMA.

length of the tomb, at the bottom, was about 1.50 m. and the depth from the surface of the road about 1 m. The whole cavity was filled with stones and clayey dust, caked hard at the top. Halfway down the shaft, human bones could be seen mixed with stones, and bits of Punic pottery of the ordinary buff colour were extracted from the mass of débris. Evidently in Punic times a burial had taken place at this height, in a tomb already excavated. Under this layer the material was much less compact and had a peculiar appearance. For about 10 cm. from the bottom, a loose mass of bones and soil of a red dark colour, as if soaked in blood, could be seen. This was, in fact, the feature which had attracted the attention of the workmen.

By careful handpicking, human bones and a number of potsherds were extracted, both bones and sherds being deeply stained red. The red

pigment, which proved to be an iron ochre, was intimately mixed with the objects at the bottom of the tomb. The bones were of skeletons of different ages, but their position could in no way be ascertained. A number of fragments covered with pigment were preserved, and three jaws were recovered in a good state of preservation. The pottery is mostly dark grey, but the black and red wares are well represented . . . Twelve different vessels of small size were deposited in this grave. The pots were ornamented with incisions, mostly deep, filled up with a white paste. They recall the neolithic ware of Hal Saflieni in its simple form (see Plates VII. and VIII. of Prof. Tagliaferro's report, published in the *Liverpool Annals of Archaeology*, vol. iii. 1910) . . . Neither flint implements nor small objects of personal ornament, usually found in such tombs, were obtained ; but the neolithic character of the burial is beyond doubt. The peculiarity of this burial in red pigment is of considerable importance, and connects our tomb with similar ones found in Italy and Sicily.'

In March, 1911, a cave was found in a quarry at Bur-meghez, near Mkabba, two or three miles to the N.E. of Hagiar Kim, which was examined by Prof. Tagliaferro. It contained a number (thirty-five at least) of neolithic burials ; the bodies had been covered by flat stones supported at the sides on pebbles ; but the latter had generally given way, so that the flat stones had fallen on and crushed the bodies.

The pottery corresponds with that of the other neolithic monuments of Malta, though some of the forms seem to be new.

A preliminary account of the discovery by Prof. Tagliaferro will be found in *Man*, xi. (1911), No. 92, p. 147 *sqq.* As he there remarks, the excavations made in the cave of Ghar Dalam in 1892 did not go far enough to be conclusive as to whether a human metacarpal bone found there belonged to a burial, though prehistoric pottery was also discovered.

Further researches in the numerous caves in other parts of the island will doubtless lead to more discoveries of this nature ; there is, notably, a cave under the palace of Ghirgenti, between Hagiar Kim and the village of Dingli, in which prehistoric pottery has been found in abundance, and Abela, i. 8 § 36 reports the existence there, on a rock above the fountain, of ' remains of very large stones and antiquities.' This very probably refers to Ghar il Cbir, a series of caves with megalithic ruins above, about half a mile from Ghirghenti. The earlier works on Malta deal briefly with the megalithic remains of the island, but they are valuable almost entirely as records of what has

now disappeared,[1] and they have been superseded by the works of Dr. Albert Mayr, already cited.

The megalithic buildings of Malta, while they to some extent form a class by themselves, have various affinities with other buildings of the same kind in the Mediterranean (Mayr, 709, 94).

Despite what Mackenzie says in *B.S.A.* xiv. 346 *sqq.*, I do not know of any ancient round huts in Malta, though the familiarity of the type in modern times may be an argument for its ancient origin. We see, however, in the great megalithic sanctuaries the combination of orthostatic slabs and ashlar masonry on which he lays such stress[2] (*The Tombs of the Giants and the Nuraghi of Sardinia*, p. 21, reprinted from *Memnon* ii. (1909); *Annual of the Palestine Exploration Fund*, I. (1911) 11), the frontal semicircle, which recurs in many lands—in the horned cairns of Caithness[3] and the long barrows of Wiltshire and Gloucestershire (*Memnon, cit.* p. 29), as well as in the tombs of the giants of Sardinia and in front of the *tholos* at S. Vittoria near Serri (Pettazzoni in *Bull. Pal. Ital.* xxxv. (1909) 171), and the use of single architraves (*ib.* 167).

The circular stone water basin found at S. Vittoria may also be paralleled in Malta (*ib.* 172): and although I cannot agree with Taramelli (*Not. Scavi*, 1911, 301) in seeing any great similarity between the monuments of Malta and the second sanctuary at S. Vittoria, which is a perfectly circular building open to the air, it is to be noted that there was found in it a stone which may have been either a *baetylus* or a monolithic altar, and in either case furnishes an interesting parallel with similiar objects found in the Maltese sanctuaries.

The wider question, as to whether the megalithic monuments were built by a single race, or by a number of entirely different races or peoples, has been much discussed, but no satisfactory answer has yet been found. It is not unlikely that it may be supplied by Italian archaeologists

[1] Abela, *Descrittione di Malta*, 1647 (enlarged edition by Ciantar, *Malta Illustrata*, 1772); Houel, *Voyage pittoresque des isles de Sicile, de Lipari et de Malte*, iv. (1787), pp. 73 *sqq.*; Bres, *Malta Illustrata*, Rome, 1818, p. 136 *sqq.* (who seems to be a mere copyist of Abela); Vassallo, *Dei Monumenti antichi di Malta*, 1876, pp. 9 *sqq.*; Caruana, *Report on the Phoenician and Roman Antiquities of Malta*, 1882, p. 6 *sqq.*; *Frammento critico della storia Fenicio-Cartaginese ecc. delle Isole di Malta*, 1899, pp. 145 *sqq.*; Perrot and Chipiez, *Histoire de l'Art*, iii. p. 292 *sqq.*

[2] For North Africa cf. Pallary, *Instructions pour les recherches préhistoriques dans le N.O. de l'Afrique*, p. 80.

[3] Compare also the East Bennan cairn in Arran (*Proc. Soc. Antiq. Scot.* xliii. (1908–9) 338 *sqq.*, 367) and the fine dolmen of Annaclochmullin in Ireland, now unluckily destroyed (Borlase, *The Dolmens of Ireland*, i. 301, *sqq.*)

in Tripolitania and Cyrenaica. The megalithic monuments of Algeria and Tunisia which have up till now been examined are too recent in date[1] to be of any help to us in deciding whether, assuming a great racial migration which, at the end of the neolithic age carried the megalithic civilisation with it, Mackenzie is right in placing its starting point somewhere in North Africa. See T. E. Peet, *Rough Stone Monuments and their Builders*, London, 1912, and especially pp. 143 *sqq.* It is interesting however to note that Lampedusa, from which in clear weather the north coast of Africa may be seen, has remains of the megalithic period (see my article in *Annals of Archaeology*, iv. (Liverpool, 1911) 11 *sqq.*).

NOTE ON THE AFFINITIES OF THE MALTESE POTTERY.

BY T. E. PEET.

The pottery of the buildings excavated during the last few years enables us to gather some information as to the affinities of the Maltese megalithic civilisation. The question has been dealt with by Mayr,[2] not altogether satisfactorily, as I have attempted to show elsewhere.[3] Led away by the seductive evidence of the incised pottery with white filling in the incisions, he proceeds to find the Maltese pottery similar to almost every Mediterranean ware which has this filling. Hence he is led to quote in comparison eight types of ware[4] which are of the most divergent dates, and have in common little but their white filling. Fortunately for archaeology, however, the criterion he adopts has been abandoned long ago. It has been shown that white-filled ware occurs in places and times so far apart as to render it useless as a test of connection between one place and another.

In any case, previous to the discovery of Bahria,[5] the amount of white-filled or encrusted ware known in Malta was comparatively very small, and the most typical Maltese ware was not white-filled at all, but simply incised (Class G.). It is rather in this ware that we ought to look for comparisons if we wish to find those which are most fundamental and therefore most valuable. And it is, I believe, precisely in this ware that comparisons are to be found.

[1] Gsell, *Mon. Antiques de l'Algérie*, i. p. 36.
[2] *V.D.* 716–7; *P.M.* 103 *sqq*; *I.M.* 50–55; *Zeitschrift für Ethnologie*, 1908, pp. 540–1.
[3] *Papers of the British School at Rome*, v. 144 *seq.*
[4] *I. M.* pp. 52–3. [5] *B.S.R.* v. 149 *seq.*

The wares with which comparisons are to be made occur in Sicily, Sardinia, Spain, the Balearic Islands and elsewhere. At the outset we must determine our criteria. We have to search for a hand-made, hand-polished pottery with incisions, these latter not necessarily white-filled.

But we can go further, for anyone who will closely examine the typical Corradino and Hal Saflieni pottery will notice that there is a tendency to use as the unit of design a band formed by two lines, usually parallel, and often filled up with single hatching or punctures.

Turning to Sicily we find one period where such ornament was usual. It is not the Stentinello period nor yet the Second Siculan period as Mayr suggests, but the so-called Villafrati-Moarda period, which probably intervenes between the Stentinello and the First Siculan periods. Pottery of this period [1] has been found at Villafrati-Moarda, San Cono and Terranova. At Villafrati, for instance, was found a bell-beaker (*Glockenbecher*) with simple band-ornament. Now among the sherds from Hal Saflieni are two which clearly belong to a single vase, though they do not fit together, and that vase was of the bell-beaker type. Round its side ran horizontal incisions, and on the bottom was an incised spiral. The incisions were painted over in red. The importance of this vase cannot be over-estimated. The form occurs in Malta, Sicily, Sardinia, Spain, France, the British Isles, and elsewhere, always about the same period, namely, the very beginning of the age of metals, and almost invariably in connection with megalithic monuments or rock-sepulchres known to be related to them. So far as we know, this type of vase is peculiar to the period in question.

Turning to the newly discovered vases from Terranova in Sicily [2] we find a system of ornament very closely akin to the Maltese. It is clearly a developed type of band-ornament in which the hatched or punctured band is still used, not in the simple designs seen at Villafrati, but in designs shewing the same freedom and originality as those of Malta. Compare, for example, the curiously sudden ending of the band-festoons in *Bull. Pal.* xxxiv. Tav. iii. Fig. 8, with the treatment of the same ornament on many Maltese vases, and notice the singly-hatched ornament of *Bull. Pal.*, xxxiv. Tav. iii. Fig. 7, which has exact parallels on many of the Corradino vases. Finally, note that the small cup with a high pointed

[1] See Von Andrian, *Prähistorische Studien aus Sizilien, passim.*
[2] *Bull. Pal.* xxxiv. (1908), pp. 119 ff. and 155 ff., Tav. iii. and iv.

handle, *Bull. Pal.* xxxiv. Tav. iii. Fig. 1, is almost identical with an example from Hal Saflieni.[1]

At San Cono,[2] where graves of the latest neolithic period were discovered, the band-ornament arranged in festoons is again common, and we have an exact parallel[3] to the typical Corradino handle (Plate XII. Fig. 5).

Passing now to Sardinia we find further parallels in the caverns of Cape Sant' Elia near Cagliari.[4] Here once more we find the usual band-ornament, but in its simple forms. Equally important is the fact that two of the most typical Maltese vase-types occur, namely the open cup (Pl. IX. Fig. 7)[5] and the flat dish with fine incised ornament beneath.[6] The bell-beaker also occurs in these caves, and in the rock-hewn tombs of Anghelu Ruju[7] near Alghero, which are in the main contemporary with the deposits of the caves.

In the Balearic Islands, we have the vase figured by Cartailhac[8] and quoted by Tagliaferro in his report as a parallel to the so-called hanging lamps of Hal Saflieni. But although there is some slight similarity, I cannot think the comparison a happy one. However, the inverted truncated-conical vase which Cartailhac also figures[9] is a common form at Corradino.

In the Spanish peninsula itself the bell-beaker occurs, and at Serro di Castello[10] we find the Maltese form, Pl. IX. Fig. 7. At Palmella we have a still more remarkable parallel as we find there the exact form of some of the Hal Saflieni "lamps."[11]

Such parallels as these are hardly due to mere coincidence, drawn as they are both from the forms and the ornament of the vases. But the remarkable fact is that all these parallels are taken from countries where the megalithic civilisation flourished, and from remains which we know to be connected with that civilisation. We can hardly avoid the conclusion that the megalithic monuments of Malta were built by the same people who built those of other parts of the Western Mediterranean. The discovery of subterranean 'architecture' in solid rock at Hal Saflieni forms yet another argument for attributing to this same people the rock-

[1] This vase is at present in the magazines of the Valletta Museum.
[2] *Bull. Pal.* xxv. (1899), pp. 54 ff., Tav. vi. and vii. [3] *l.c.* Tav. vii. Figs. 3 and 4.
[4] *Bull. Pal.* xxiv. (1898), Tav. xvii.–xix
[5] *Op. cit.* Tav. xvii. Fig. 10.
[6] *Op. cit.* Tav. xviii. Figs 7 and 8. [7] *Notizie degli Scavi*, 19c pp. 301 ff.
[8] *Monuments primitifs des Baléares*, p. 61, Fig. 55. [9] *Op. cit.* p. 59, Figs. 49 and 50.
[10] Cartailhac, *Les Ages préhistoriques de l'Espagne*, p. 214, Fig. 278.
[11] *Op. cit.* p. 127, Figs. 169–171.

hewn graves of Sardinia, Spain and perhaps Sicily. Where this immigrant people came from we need not discuss here, but it is clear that as regards pottery at least they had a common inheritance, which developed on different lines in the various countries in which they settled.

In this connection it is interesting to find that the small conical button with two convergent holes in its base, already known as typical of the megalithic period in Spain and Sardinia, occurs in considerable numbers in shell at Hal Saflieni. At the same time the pierced model celts of Malta [1] should be compared with those of Sicily, so common at Castelluccio and elsewhere.

Thus the evidence of these small objects bears out that of the pottery. The affinities of this Maltese material are therefore to be sought in Sicily, Sardinia and the Western Mediterranean, and no doubt, though this we cannot prove, in North Africa. Connection of origin with the pottery of the Aegaean there is apparently none, at any rate it is so remote that we cannot trace it, and of direct Aegaean influence I can see no certain evidence whatsoever.

I.—CORRADINO HILL: WEST BUILDING.

Excavations have been conducted in recent years in three different points on the hill of Corradino or Cordin. Caruana (*Arch. Journal*, liii (1896), 26 *sqq.*) speaks of the existence of five groups of ruins all close together, and gives plans of two of them, both of which he excavated partially. These have been completely cleared in recent years, but we have never been able to find the other three which he mentions. It is clear from his account that he did not notice the southern group, which lies a good deal further off.

The first to be described is the smaller (western) group of ruins, which lies on the slope of the hill towards the innermost recess of the Grand Harbour, above the liquid fuel tanks recently erected for the Royal Navy. It was excavated by Caruana in 1842, and reinvestigated by Professor Zammit in 1908. Mayr gives a short description of it (693, 69) and a plan (Pl. VII.) adapted from that made for Caruana by F. Vassallo.

[1] Large numbers from Hal Saflieni, one from Corradino (east building), and one from Hagiar Kim.

Our plan (Pl. II.) is based on this, but is a result of the re-examination of the ruins.

There were, according to Mayr, three entrances to the main building, but we cannot consider it certain that there was one on the N.W. side of A, for the wall is too much broken away; it is, however, quite possible. The wall on the S.W. of B was noted by Caruana as present in its entirety; but he was perhaps mistaken, for no trace of it now remains: of its original existence there can be little doubt, and Mayr shows it in his plan.

The entrance into D, shown by Mayr at *b*, appears correct, and it looks as if there were a second one over the second stone to the S.W. of this: that into E is correctly indicated (at *c*). There may, too, have been an entrance into F from the south (at *dd*), or it may be that the wall is only broken away. To the S.W. of E are some remains of walling, with a pillar stone *f*.

Three other spaces, H, K, and L, have been added to the plan. H has a slab floor; K is a room in the nature of an annexe and is entered from the outside of the building. L shows a torba floor; the entrance is uncertain.

The stone marked *a* in Mayr's plan is a pillar, 34 inches high, with a rope-hole bored in it. Between A and B there is a threshold, not shown by Mayr, and that between B and C is now made clear.

In A there lies a stone pillar, 0·58 m. high, by 0·30 m.[1] in diameter at the ends, but tapering in the middle: it is not *in situ*.

The study of the building has been rendered much more difficult by the removal in the previous excavations of the 'torba' floor. It is, also, often extremely hard to decide whether the small rough stones of which these walls are composed are *in situ* or not.

II.—CORRADINO HILL: WEST BUILDING.

Pottery and Small Objects.

Only a small quantity of pottery was found in this building, but this was sufficient to show that the period of habitation was the same as that of Corradino East Building, situated a hundred yards further up the hill.

[1] For all practical purposes 1 metre may be taken as equivalent to 3 feet 3 inches: so that 0·30 m. = 1 foot, and 0·025 m. = 1 inch.

Compare the classification and description of the pottery from that site and from Corradino South Building.

A. Rough wares.

(1) Unornamented.

(2) Scale ware.

All the five types of Corradino South occur, together with another type in which the large scales are very irregular in shape and position.

(3) Pitted ware.

The pits are circular, oval, linear, or are reduced to mere punctures.

(4) Studded ware.

There are two pieces only, both of the fine dark type. One has small circular affixed studs, the interstices being filled with white. In the other the flat elliptical studs are cut out on the vase and are almost more like scales.

(5) Line ware.

There are five rough pieces.

B. 'Maltese' slip wares.

I. Vases incised after firing.

The incisions are made with a fine sharp point. The designs consist of lattice pattern (G 18), or simple curvilinear designs of the hatched type so common at Ix-Xaghra ta Cordin. Three pieces show parts of the design filled in with dots (G 24).

II. Vases incised before firing.

(1) Corradino incrusted ware (see Corradino South).

Sixteen pieces.

(2) Dot and line ware.

Twenty-one pieces—a rather large proportion. White filling is usual.

The handles and shapes offer nothing worthy of remark, all those found being well known at Corradino East and South.

Objects of Flint.

For the classification see Corradino South.

A. Scrapers with a single worked edge.

(1) Usual type—several examples.

(2) Segmental type—one example.

B. Scrapers worked all round or nearly so.

(1) Roughly circular—[Pl. XXVI. Fig 13]
(2) Triangular—
(3) Long rectangular—
} examples of each.

C. Flakes, practically unworked.

(1) Triangular points—three examples.

D. An arrowhead, 18 mm. long, with wings, concave base and no tang. This is the only flint implement as yet found in Malta which is worked on both faces. The working is minute and fairly accurate. No other arrowheads are known in Malta.

III.—CORRADINO HILL: EAST BUILDING.

The next building which demands our attention is that which lies to the N. of the Detention Barracks.

The site, before the construction of the ditch enclosing the top of the hill, occupied the summit of the ridge, overlooking the harbour and commanding a fine view on every side. The cutting of the ditch, in 1871–2, is responsible for the destruction of a portion of the remains, perhaps not a very considerable one as far as we can tell from the plan of the rest.

There appear to have been excavations here in 1840, of which the only record is contained in Cesare Vassallo, *Dei Monumenti Antichi del gruppo di Malta* (Malta, 1876), page 32. 'Non porrò fine alla descrizione degli edifici religiosi dei Fenici, senza rammentare quello che sta inosservato sul colle di Corradino. Non ne fu scavata nel 1840 che piccola porzione, ed a soli cinque piedi circa di profondità, e vi furono tosto scoperte due entrature, che conducono ai soliti emicicli, e dello stesso apparato di grossissime pietre. Non è a dubitare che ripulendo quel dintorno, segnato nella superficie da immani massi che invitano a scavare, non si scoprirebbe, anche a Corradino, intero un edificio, non forse inferiore in interesse agli altri fin qui scavati.' The allusion must be to the portion marked A–C on the plan. Caruana, however, who partially excavated this building in 1892 (*loc. cit.*) makes no mention of previous explorations, and Mayr (690 *sqq.*; 66 *sqq.*) though he actually cites the passage of Vassallo, did not apparently notice this fact.

The account of Caruana is unfortunately very inadequate, and it is often impossible to tell whether he is correct in his interpretation of what he found, and whether some of the walls that he marked as such in his plan are really walls or no: nor does he note the original floor levels in the part of the building which he excavated, though it must be said that the other portions were found by us to be much ruined and difficult to understand. The small objects were not preserved, any more than was the case with the other megalithic monuments which he excavated. The plan, however, made by Vassallo is serviceable, while Mayr's description is a good one; and we have adopted the lettering of the text and plan of the latter (taken from Vassallo) as far as it goes in our Pl. III. Our investigations were conducted in October, 1908 and May and June, 1909.

The first room of the series of three rooms on the S.W. side of the building, A, served, according to Mayr, as a forecourt. It was entered from the N.W. by an aperture, the size of which cannot have been greater than 4·70 m., while it may have been less. To the N.W. extend stones apparently packed in to form a pavement, for a distance of several metres. Whether the drop in level at the entrance existed originally, it is impossible to say, as we do not know the original floor-levels in this portion of the building: they were not noted during excavation, and cannot now be recovered. Mayr is wrong in supposing that the floor was always the natural rock.

The blocks of which the walls are composed are, Mayr says, unusually small and low, and he suggests that A was rather an enclosed court than a chamber. To what extent indeed the various parts of the building were roofed is a question to which it is not easy to find an answer. But his observation as to the special smallness of the blocks in reality applies only to the portion N.E. of the opening.

A doorway about 1·60 m. in width, the sides of which were flanked by large vertical slabs, a, a^1, b, b^1, leads into the next chamber, B. In the front pair, *a*[a] and *b*, the former of which had fallen in Mayr's time, holes, about 0·12 m. in diameter, were found at 1·10 m. above the ground level, going right through each block. These perhaps served for the fixing of a wooden beam to close the opening. In the S.W. block, near its N.W. extremity, is a smaller hole about 0·03 m. in diameter, possibly for a cord

[a] *a* measures 1·60 m. high by 1·30 wide, by 0·45 thick.

or rope. The outer faces of the blocks are slightly smoothed, and *b* in particular shows traces of careful working.

The N.E. block of the back pair a^1 had fallen since Mayr's work was written (see *V.D.* Pl. VIII. Fig. 2). It measures 1·60 m. high by 1·15 wide by 0·50 thick. The present position of *a*, a^1 is shown in the plan (a^2, a^3). On the N.E. side are traces of pit-markings, and a small slot hole which is 1 m. above the ground level and measures 0·15 m. long, 0·06 high, and 0·4 deep.

The S.W. half of B is almost rectangular, and a stone which once projected from the wall but is now fallen, divided it, according to Mayr's view, into two niche-like recesses. On following the external wall a much rubbed Roman 3rd brass was found 0·08 m. below grass level. The N.E. portion is apsidal. A low wall, *c-d*, 0·70 m. above the ground level, which we have cleared, runs in front of the apse, following its curve, and forms a bench or shelf 0·60 to 0·90 m. wide. A slab *e*, 1·20 m. high (not 1·50 as Mayr says, for it does not reach down to the ground) closes the bench on the S.W.: it has a hole in it 0·25 m. in diameter, and is 0·40 m thick. Behind the upper wall of the shelf are seen the stones of the centre of the core of the wall (see Mayr's plan).

In front of the apse are two depressions in the rock floor, one circular, *x*, 1·00 m. in diameter, and 0·45 to 0·50 m. in depth. Mayr considers it without a doubt a receptacle for water, but this is by no means certain.

The other, *y*, is rectangular.

The vertical slabs which lined the entrance to C have fallen, one of them lying over *y*, and the large block on the N.E. which originally measured 2·20 m. high, 1·10 m. wide, 0·50 m. thick (being thus one of the largest in the building) is broken across.

C has two well formed apses, in the S.W. of which is the loftiest slab now standing erect in the whole building, *p*, 2 m. in height.

The entrance into D, the present level of which is some 0·20 to 0·30 m. higher, is formed by a doorway 1·55 m. in width, with a threshold block, *f*, 1·70 m. long, lying in front of it (Mayr says that it is partly worked in the rock, but this is incorrect). Just behind it is a ridge of rock *g*, 0·35 m. high, which perhaps marks the height of the original pavement. As things stand at present, it, as Mayr remarks, blocks the entrance, leaving only a space of 0·65 m. available on the S.W.

The exact outlines of D are very doubtful, as the walls have almost

entirely disappeared. Caruana's plan shows the beginnings of walls, as though it had been similar to the three rooms just described; but the traces visible on the spot are scanty, and on the S.E. no walling is preserved at all, while on the S.W. its destruction is due to the later wall mentioned below.

Mayr is quite correct in distinguishing[1] between the character of the walling in A, B, and C (including the adjacent N.W. wall of D, and the adjacent N.E. apse of E) inasmuch as in this portion of the building the blocks used are considerably larger than in the rest. Here they are 0·70 m. to 1·20 m. in height and up to 1·80 m. long, while elsewhere they are seldom over 1·00 high, and easily tumble away from their earth backing. The blocks are almost entirely unworked: traces of a second course are rarely to be seen; but the height of the walls, though varying, is only about 1 to 1·50 m. on an average. An external wall of smaller blocks may be traced at the points shown on the plan, but its line is not always very regular. Between these blocks and the blocks and slabs which form the inner facing is a packing of earth and small stones.

The floor, as seen at present, is the natural rock; but it is doubtful whether here, as elsewhere in the building, there was not originally a floor of stone slabs or of clay.

To the S.W. of D is an enclosure D^1 with a rather sharply pointed apse on the E. which is, in the main, shown in Caruana's plan.

Though some large blocks are used, the character of the construction is not so good as in A, B, or C, and is rather more similar to that of the rest of the group, in which smaller stones are found; though even here slabs are the most frequent, and the roughly coursed work of blocks and unworked stones of which Mayr speaks can hardly be said to be used in the majority of cases.

The southern portion of the building has been to a great extent destroyed by the construction, at a subsequent and as yet undetermined date, of a perfectly straight wall 1·15 m. in thickness (ZZ on the plan) which runs N.E. and S.W. It is faced with rough blocks on each side, and has smaller stones in the centre; and both the straightness of its line and the entirely different character of its construction render its later date certain. It is curious that no later finds in connexion with it have been made.

[1] The packing at the N. angle of D was examined in 1908. The depth to the floor was 0·90 to 1·20 m., but we could detect no stratification. For the first 0·60 m. there was no pottery: then the soil became harder and we began to find pottery. It was obviously a filling made at the time of the construction of the building and not the result of a gradual accumulation.

Various walls which are visible outside the Admiralty enclosing wall are also later. To the S.W. of this latter wall the rock is about 0·45 m. below the ground level.

In D¹ are remains, comparatively high up, of a late 'torba' (or limestone chip concrete) floor, and also at a slightly lower level of a floor of rough small flat pieces of stone: this last floor can also be traced in L¹ and L². Under it pottery and flints were found. At a lower level still in the W. angle of the room as preserved are remains of a hard trodden floor some 0·60 below ground level, and 0·15 m. thick, resting on the rock, with small stones and no pottery in it.

L is a chamber of irregular form, certainly not approached from P, Q, or V, though very little else that is certain can be said about it. It is in reality divided into two parts by the double threshold *ll* mentioned by Mayr; a large block on its S.W. side has a beam hole in it. L² is a niche-like recess to the E. in its N.E. portion, while L¹ is to the S.W. against the new boundary wall. The removal of the slab pavement in L² led to the finding of much pottery, and at about 0·45 m. lower a limestone chip floor, 0·04 thick, hard and well preserved, with clay under it about 0·04 and stones below that. No pottery was found in or under this torba floor, (Pl. IV. Fig. 1).

The rest of the building lies to the E. and S.E. of the irregular open spaces (rooms they cannot have been) F, G. Mayr is quite right in entirely rejecting Caruana's idea that the N.E. portion of the building also consisted of apsidal rooms, a supposition for which there is no evidence at all.

Caruana supposes an entrance to E on the N.W. between *i* and *h*, but this is improbable, as the outer wall is traceable here: Mayr prefers to see one on the N.E. between *hh* and *ii*, over what may have been a threshold of rock (there is no wall to E on this side, but only rock just below ground level) 0·50 m. high. Here again our lack of knowledge as to the original floor-level puts us in a difficulty. A mass of rock in F rising irregularly seems to indicate that the floor must have been above it. Whether G was accessible from D or not we cannot say for certain.

H is a small space opening out of F, J a similar one opening out of G. Mayr saw it with a doorway only 0·40 m. wide, but the outer wall has been partially destroyed since then.

Out of G also opens K, which is again of irregular form.

To the N.W. of it is the space N, not shown in Caruana's plan, and apparently excavated subsequently. Mayr indicates it in his plan and speaks of it in his text as entirely closed ; but part of its N.E. wall has since then been destroyed, and a modern wall built across its interior. The wall between N and M and O and M is apparently mainly composed of stones, and it was therefore only cleaned at the top and not further examined by us.

From K, a door 0·70 m. wide leads between two standing stones (the higher is 1·20 m. above the sill) *u* and *v* to Q, one of the portions of the building not excavated by Caruana. There is a slab just in front of the doorway, 0·79 m. by 0·39 m. by 0·11 m. thick, but the amount of rise here is not quite certain, as the floor in this part of K is not preserved.

The floor of the space Q is on the same level as the top of the slab, and there are two stones in line as if for a door to close against, 0·86 m. long, 0·19 m. high, and 0·23 m. wide. The S.E. wall of the space Q is part of the curving wall of V. The floor of Q is made of flattish blocks of stone, very irregularly laid, and has soil underneath it, and then comes the rock. In some cases small pieces of stone mortared (?) on to the projecting bits of rock may be seen.

In the thickness of the wall which separates Q from K is the space R, which was full of pottery, and goes down to the solid rock at 1 m. below the surface. About 0·30 m. down was a layer of small stones. It seems to have been entirely inaccessible except from above : cf Mayr (672,39), for a similar feature in the building N, at Hagiar Kim.

To the N.E. of R is the space S, similar in character, but approached by a doorway 0·95 m. in width, from a small anteroom T, which is itself reached from K by a door between the two slabs *m* and *n*. On the S.E. of the latter is a step, 1·00 m. long, 0·50 m. wide, 0·12 m. high, between two upright blocks, one of which is one of the sides of the doorway between S and T.

This leads up to another level slab *n′* 0·31 higher, 0·73 wide, 0·20 deep, enclosed by two stones, and behind this again is a large block of stone, which seems to be in position, so that we can hardly suppose a doorway here, but must assume that there was a niche.

To the N.E. is an area V about 0·30 m. higher in level than the rock in T, probably not accessible from T, but from the N.E. Its prolongation has, however, been destroyed by the modern fortress ditch. It is roughly paved with slabs of stone.

At the probable floor level of this part we found small stones packed in, for a thickness of about six inches, with no pottery in them. K is separated by an irregular wall from the space O to the N. of it: at the E. end of the dividing wall is an opening. The floor of O is 0·27 m. lower. It consists of slabs of stone, some quite roughly laid, with a thin grey clay lining over them in some cases. Below these slabs is the rock.

The form of O is very irregular: the whole was full of loose stones and earth, with which pottery was intermixed, and the N.W. portion especially is even now not quite clear. Among the stones was a cylindrical one, 0·40 m. in height, 0·20 m. in diameter at one end, and 0·18 to 0·22 m. at the other. It would seem that the slab *q*, which is 1·43 m. high, 0·18 m. thick, and 0·90 m. to 1 m. wide, originally stood upright and formed one side of a doorway, the other being formed by *r*, and another stone which has fallen. But the inner surface of *q* was found, when it was raised, to be not weathered at all.

On the west side is a step formed of small blocks, rising 0·32 m. between two upright ones and forming a shelf 0·77 m. long and 0·35 m. wide. Its object is quite uncertain, and its lowness remarkable.

To the N.E. is a threshold slab, *t*, *in situ*, at least 0·80 m. long, 0·40 m. wide and 0·10 m. thick. It led to a portion of the building which has been destroyed by the modern fortification ditch.

To the N. again are four small spaces, P^1–P^4, divided by vertical slabs and small blocks set on end. P^3 and P^4 were partly paved with torba, but elsewhere the natural rock served as the floor. They contained flints and pottery. In one of the blocks which line P^1 on the N.W. is a hole 0·15 m. in diameter and 0·28 m. deep, which does not go right through the block. In it was a small flat stone 0·12 by 0·10 m. and 0·04 m. thick.

From P^4 a doorway *s* 0·40 m. wide leads into a passage M^1, and this by a step descending 0·20 m. to a doorway 0·85 m. wide, somewhat better constructed than is usual in this part of the building, formed by two upright slabs with comparatively smooth faces. Such good work is only to be found elsewhere on the south-west doorway from A into B. In the doorway was found a pillar 0·83 m. long (*infra*, p. 27). When found it was lying almost horizontally, parallel to the side slabs of the doorway (cf. Mayr, *P.M.* 56, *n* §[1]). The existence of a shrine in this part of the

[1] The passage does not occur in *V. D.*

building is not at all impossible, though it is unlikely that M^1 was a niche rather than a passage way.

This doorway leads into the space M, which is at present in such confusion, owing to the collapse of parts of its walls, that there is nothing new to be said about it.

To the N. of it a modern box drain, going N. and terminating at the fosse, was found.

In the space N.E. of M^1 much pottery was found: to the N.W. in a space, between two flat slabs, two flat stone grinders were discovered.

We now return to the area S. of Q.

Here is an apsidal space, V: the apse at the west end is clear, and the N. wall (which is the S. wall of Q) curves in such a way as to justify the supposition that there was another apse on the east. Here, however, the walls have been destroyed and the rock is only about one foot below the surface, both on the N.E. and on the E.S.E., and only loose stones are to be seen. There is a well defined clay floor about 0·55 m. below ground level.

Another space with a decidedly pointed, almost rectangular, extremity W, faces S.E., and its prolongation appears to have been entirely destroyed. The modern boundary wall erected on this side was intended to respect the remains of this building, and seems to have succeeded in its object.

A clay floor similar to that of V was found in W, 0·45 m. below ground level; the clay was 0·10 m. thick and then came stones 0·10 m. thick. In the clay was pottery of the usual type.

In the trench to the E.S.E., which reached the rock about 0·30 m. down, was found a small fragment of a human lower jaw.

IV.—CORRADINO HILL, EAST BUILDING. POTTERY AND SMALL OBJECTS.

The objects found may be divided into those of stone, those of bone, and those of terracotta.

Objects of stone.

The most remarkable of these are two small columns. The larger, found broken and out of position, in the doorway connecting rooms M and P is roughly cylindrical. Its length is 83 cm. and the diameters of

its ends, which are both slightly concave, are 22 and 26 cm. respectively. The working of the stone is rather rough. The other column can hardly be called cylindrical, for, while at the ends its diameter is 21 cm., at the centre it narrows to 18. Its length is 42 cm. One end is slightly concave, the other is flat. It is unlikely that these columns played any necessary part in the construction of the building itself. They probably supported stone tables—perhaps serving a ritual purpose—as at Mnaidra, or they may even have been themselves objects of worship.

Another piece of worked stone, found not far from the longer column, is undoubtedly part of a basin which must have been about 50 cm. in diameter, 25 in depth, and 5 in thickness.

Of uncertain use is a heavy crescent-shaped stone, 19 cm. from point to point.

Ten roughly circular stones, flat on one surface and convex on the other, were undoubtedly used to grind various substances upon. The largest of these has diameters of 18 and 14 cm. respectively, and is thus roughly elliptical. The actual grinding was doubtless done with pebbles of hard stone of a convenient size for holding. Some twenty of such pebbles were found.

We may probably class as mortars three thick stones, each with a circular depression in its upper surface. These depressions are about 6 cm. in diameter and 2 cm. deep at the centre (cf. Pl. IX. Fig. 5). A larger and flatter stone has in its surface an elliptical depression, 115 mm. long, 55 broad and 33 deep, which appears to have been worn by grinding.

A curious object is a small conical stone, 57 mm. high, 3 cm. in diameter at the base. Near the apex are two small round depressions side by side each 5 mm. in diameter and 2 mm. apart. The object gives the impression of a rough statuette whose eyes are formed by the depressions mentioned above.

Under the head of sling-stones may perhaps be considered a spherical stone 28 mm. in diameter, and an ellipsoidal stone with pointed ends, about 6 cm. long. The last is a type very frequent at Hal Saflieni.

All the objects so far described, with the exception of the pebbles for grinding, are of limestone. Of fine, hard, grey-green stone is a model celt 27 mm. in length, pierced at the apex, similar to those of Hal Saflieni, which are supposed to have served as pendants.

The Flints.

For classification see Corradino South (*infra*, p. 49) and cf. Plate X. Over 200 were found, of which only 27 showed traces of working.

A. Scrapers with a single worked edge.

(1) Usual type—common. (Cf. Pl. X. Figs. 6 and 15)

(2) Segmental type—a few. (Cf. Pl. X. Figs. 3 and 12)

B. Scrapers worked all round or nearly so.

(1) Circular—many examples. (Cf. Pl. XXVI. Fig. 13)

(2) Triangular—two examples. (Cf. Pl. X. Figs. 5 and 11)

(3) Long rectangular—two examples. (Cf. Pl. X. Figs. 8 and 14)

C. Flakes practically unworked.

(1) Triangular pointed—several. (Cf. Pl. X. Fig. 1)

Objects of bone.

Only two pieces of worked bone were found, one a borer 38 mm. long, highly polished towards the point, and the other apparently the eye-end of a coarse needle.

It may be stated here that vast quantities of bones and shells were found in all parts of the building, especially in sections O, P.[1] Of the bones about one per cent. were burnt or blackened by fire. Only one fragment of human bone was found, a piece of a lower jaw.

Objects of terracotta.

The pottery corresponds in a great measure to that found at Hal Saflieni and so ably studied and published by Professor Tagliaferro.[2] As this work forms so sound a basis for the classification of Maltese pottery I have as far as possible followed the division there adopted. His excellent plates should be referred to. References to them are placed in round brackets, while square brackets refer to the present publication.

[1] The shells were determined by Dr. A. Caruana Gatto, as follows: Helix vermiculata (new variety), Helix aperta, Ceritium vulgatum, Ceritium fuscatum, Pecten varius, Trocus divariatus, Trocus articulatus, Anomia ephippum, Nassa variabilis, Conus Mediterraneus, Stenogyra decollata, Ciclostoma Melitense, Ciclonassa Melitea, Columbella Rustica. All these varieties are still found in Malta.

[2] *Annals of Archaeology and Anthropology*, published by the University of Liverpool, vol. iii. part i. pp. 1 *sqq*.

In the pottery of Corradino East almost every variety of size and fineness is to be found. We may divide the vases according to size into large, medium, and small.[1]

In the large vases the walls vary in thickness from 10 to 22 mm. In the coarser examples the clay is usually red throughout, or black, burning to red on the surface. It is very impure and contains small fragments of white stone and even pieces of shell. There is seldom a slip or a polish. The chief forms are large ovoid jars and vases of inverted-conical form with a flat base. The finer of the large vases are of purer clay; the surface is sometimes covered with a slip, blackish in colour and smoothed over with a flat implement.

Among the medium-sized vases, whose walls are from 7 to 10 mm. thick, the rougher specimens are of blackish or reddish clay, unpolished on the outer surface. A few examples of this class have, however, a good polish on the inside, while the outside is left quite rough. The finer vases have a grey, brown, or red surface and a fair hand-polish. Vases red on the outside and with a good brown or black polish within are not uncommon. All these finer vases are covered with a good slip.

The smaller vases are almost always of fine ware, with the exception of a few unpolished red specimens. The walls are from 3 to 5 mm. in thickness, and the colour and texture of the surface serve to distinguish this ware from all others. It has in the first place, a hard, brittle appearance and feels rough and gritty to the touch, despite a fair polish. The colours, which show the utmost variety, are never very definite in tint. Jet black and brick red are both absent, but we find every shade of grey and brown. Many pieces are of a dull pink, or of a grey which is almost white, with a trace of blue in it. This last colour tends to give to the polish almost the appearance of an inferior glaze. There is often considerable variation of shade on the same vase, due to uneven firing.

A. Rough faced vases (ornamented before firing).

(1) The vase is quite plain, or a small knob of clay is raised on it, usually diametrically opposite to the handle, or a small vertical or horizontal ridge of clay itself serves as handle.

[1] These remarks apply to the pottery from all the three Corradino sites.

(2) 'Leaf or scale' ware. In this the vase is almost covered with a raised pattern resembling leaves or fish-scales.

(*a*) Long vertical furrows run parallel and their upper ends are rounded off to form scales (C 4[1], Pl. II.). [Cf. Pl. XII. Fig. 4.]

(*b*) Scales or leaves of varying height are set side by side in such a way as to form scallops (C 6, Pl. III.). [Cf. Pl. XXVI. Fig. 1, No. 1.]

(*c*) The vase is covered with scales overlapping as on a fish (C 5, Pl. IV.). [Cf. Pl. XII. Fig. 1.]

(*d*) Long scales are set side by side with their tops in a horizontal line round the vase.

(*e*) The scales are produced by a comb-like implement and so have a finely-veined appearance (as in C 6).

(*f*) Two fragments show three parallel adjacent vertical rows of fine scales (not known at Hal Saflieni).

This 'leaf and scale' work is usually applied to vases of large or medium size of yellow or reddish clay. There is never a polish, but many examples have a yellowish slip. A few pieces are of rather better ware of a drab tint. The scales vary greatly in width, the widest being 60 mm. and the narrowest only 5 mm. (Cf. Hal Saflieni, Types C 4–8).

(3) Pitted ware.

Usually medium-sized vases of rather rough ware. There is no polish, but a slip often both inside and out; the surface is usually grey or drab.

(*a*) The vase is covered with small oval pits. (B 3, Pl. I.)

(*b*) The pits are crescent shaped, and sometimes filled with a white substance.

(*c*) The pits are long and narrow ('strokes') and may or may not be white-filled. (B. 3, Pl. I)

The ornament usually covers the whole vase almost at random, but in one case of Type (*c*) the strokes are carefully arranged in horizontal rows.

(4) Studded ware.

Poorly represented by a few dark unpolished fragments with small circular studs applied regularly over the whole surface (D 9).

[1] The references in round brackets are to Professor Tagliaferro's classification and plates.

(5) Lined ware.

The vases are of medium size, rather rough outside, but smooth and even polished inside. The whole vase is covered with deep incised vertical lines, quite close to one another or some distance apart. There is sometimes a white filling in the incisions. (G 16 and 17.)

B. 'Maltese' slip ware.

For details of the clay and slip see *supra*, p. 30. A certain number of these vases are unincised, especially the larger.

I. Vases incised after firing.

The incisions are lightly incised with a sharp point. They are rectilinear or curved. Sometimes the decorative scheme is carried out in single lines, sometimes in double parallel lines forming a sort of band. Occasionally this band is filled with single or double hatching. To save useless description, it may be said that the patterns correspond exactly to those found by Father Magri at Xeuchia, and illustrated in his *Ruins of a Megalithic Temple at Xeuchia, Gozo.* (See especially Pl. I. Figs. 12, 16; Pl. II. Figs. 65 and 19; Pl. III. Fig. 49; Pl. V. Figs. 32, 33, 67; Pl. VI. Figs. 57, 58; Pl. VIII. Figs. 42, 43.) Cf. also Corradino South and Mnaidra.

A constantly recurring form is that shown in Pl. IX. Fig. 7. The upper part of the vase is covered with a simple pattern of festoons, scrolls or spirals and straight lines, and there was probably in most cases a handle (G. 20).

Occasionally the incisions were filled with a white substance, and in some cases they were painted over with a narrow band of red. (G. 21, Pl. XI.). In other vases the enclosed areas of the design seem to have been coloured red. The inner surface of the handles is often still covered with the same red paint, which may have occasionally been applied to the whole vase.

It is notable that many of these patterns, which show remarkable freedom of design, do not occur at Hal Saflieni, where the ornament in this class of vases follows a few fixed types. At the same time, the stereotyped Hal Saflieni designs are not wanting here, indeed they are extremely common. One sherd was from a dish of Hal Saflieni Types 25 and 26.

The use of the toothed line and also of dots filling up spaces may be

noticed, but neither of the vase-forms for which these two elements of design were at Hal Saflieni respectively reserved (viz. Types 22 and 24[1]), occurs at Corradino.

The type of pottery here described (Maltese slip ware) is far more frequent than any other on all sites as yet excavated in Malta. It is easily recognized by the curious gritty feel of its moderately polished surface, and also by the nondescript tints which parts of the surface assume in all but the very finest vases. We have already referred to these colours, which are the result of unskilled firing.

II. Vases incised before firing.

(1) Corradino incrusted ware. (See Corradino South.)

Only some two dozen very small fragments of this pottery were found. The vases are medium or small and made of good clay. The rectilinear ornament consists of broad lines made *by cutting out the clay* with a sharp instrument. The lines cut out are often so broad as to rather deserve the name of bands. They were probably in all cases incrusted with a white substance. Their edges are often minutely notched in a kind of fish-bone design which helped to hold the white filling more securely. The patterns seem simple, consisting mainly of horizontal lines or bands round the neck and body of the vase.

(2) Dot and line ware.

The vases are of medium size, sometimes of very dirty clay, slipped but not polished, and of grey, brown, or black colour. The ornament is first outlined by incising and then filled in with dots by a sharp pointed implement.[2] By holding this implement in a very slanting position the dots could be replaced by short strokes. The most usual pattern is the dog-tooth. The incisions and punctures are usually filled with a white substance. (Type 23. Pl. XII.)

The Handles. Cf. Corradino South for classification.

A. String-holes.

Pierced either in the rim or in a small projection on the body of the vase.

[1] See Pl. XI. and XIII. Professor Tagliaferro believes the vases of Type 24 to be hanging lamps for lighting the hypogeum. In view of the size of some of them I should hesitate to accept this. They are much more probably part of the funeral furniture of the dead.

[2] This ware should be distinguished from some of the finer examples of Class B. I. in which dot and line ornament is used. In the latter case the design is incised after the firing, in the present case before it.

B. Rope-holes.

Both the tunnel and the tube-handle occur. Cf. Pl. XII. Figs 7 and 8.

C. True handles.

(*a*) There are fragments of high ear-shaped handles rising above the vase-rim.

(*b*) The most usual of the finger handles are flattened above so as to give an angle round which the clay is shaped into a pyramid. Cf. Pl. XII. Figs. 19–22.

(*c*) Others are not flattened above but run out to a point as in Pl. XII. 5. Exactly similar handles occur at San Cono (*supra*, p. 16) in Sicily on vases of the late neolithic period. The Sicilian forms are hardly so much developed as the Maltese.

V.—CORRADINO HILL: SOUTH BUILDING.

At the end of May, 1909, the excavation of another building was begun. It is situated to the south of the road leading to the Detention Barracks from the Marsa, along which runs a now disused tramway line, in a field belonging to the Government of Malta, and called 'Ix-Xaghra ta Cordin.' See plan, Pl. V.

The site had not been previously excavated, and presented the appearance of a mound from which large blocks and slabs of the local limestone protruded, which clearly indicated the presence of a megalithic building: the outlines of two apses (A and B) could be traced, and other indications (notably the large stone *c*, on the N.W. side of the doorway into A B) were of material assistance. The excavation of the central portion of the building, on the other hand, was attended with somewhat greater difficulties, owing to the presence in the centre of the rooms of large loose blocks of stone, which rendered it hard to suspect their plan.

A lucky chance, however—an experimental trench between the two standing stones *g h*, in order to ascertain the depth to which the excavation would have to be carried—led to the discovery of the trough; and the curve of the wall of G was shortly afterwards recognized. The discoloration of the upper portion of some of the blocks shows where the ground level was before excavation. (See *e.g.* Pl. VII. Fig. 2.)

The building occupies the summit of the ridge, like the east building near the Detention Barracks, from which it is about 600 metres distant, overlooking the Marsa, and commanding a fine view to the S.W., W., and E.: the front of the building faced due S.

The building consisted of at least four parts or groups of rooms, not accessible from one another. Of these A B formed one, C–I another, each of these having separate entrances in the façade. J, which was also entered only from the S., is not connected with any of the other rooms, and may be a later addition to the plan.

The rooms to the north, K–Q, are smaller and are constructed on a less massive scale. They may have served for domestic purposes; but that the first two groups were places for worship, and were analogous to the prehistoric sanctuaries of the island, there is little doubt. Neither of them presents the characteristic arrangement of two oval areas side by side, with the entrance on the line of the minor axis, and the most important niche in the building opposite to the entrance (Mayr, *op. cit.* 4. 647); but it is probable that one such area was originally formed by D, E, F, and G.

The façade curves considerably (Pl. IV. Fig. 2), presenting perhaps an analogy to the frontal semicircle, which is so familiar to us in the Tombs of the Giants of Sardinia: the curve is far more strongly developed than in the other megalithic sanctuaries of the island. In fact, until the discovery of the building with which we are dealing, I was hardly inclined to accept Mayr's comparison of the sanctuaries of Malta with the Tombs of the Giants and the Navetas of the Balearic Islands (where it is much less strongly developed) in this respect (*op. cit.* 713, 97; cf. *supra* 13).

It does not seem likely that in our building there was any projection beyond the actual line of the façade: some smaller stones were found at the S.E. extremity and at first thought to form a wall, but in all probability they are mere debris.

The façade was constructed of massive slabs, now much broken, and in some cases fallen, placed vertically, with footing blocks in front of them, the latter projecting about 0·60 m. Behind the orthostatic slabs is packing, and then a second line of slabs. This method of construction may be most clearly seen between the two entrances. Here we find, at about 0·90 m. below the modern ground level, the large, flat footing blocks carrying the orthostatic slabs of the front line over a depression in the rock. In the

first foot of earth under the blocks, pottery and bones were found, while the next layer down to the rock, 0·50 m. thick, is the natural red virgin earth and contains no extraneous objects. One of the orthostatic slabs of the façade here measures 2·00 m. in length, 0·63 m. in thickness, and 0·99 m. in height: the top, however, is broken off, as is the case with all the slabs of the façade, so that the original height is uncertain. The fallen stones, some of which were found lying in front of the slab at this point, belong probably to the upper portion. Behind this slab is a space about 0·50 m. in width, which was packed with stones and earth, the latter containing some pottery, and beyond it again another slab 0·50 m. in thickness. Behind the second slab, between it and and the back of the wall of the apse G, is a further space about 0·75 m. in width, also filled with a packing of earth and stones. This was excavated by us: some pottery was found in it, and, at a depth of about 1·05 m. below the modern ground level, a considerable quantity of animals' bones. The rock was reached at 0·23 m. further down.

The front wall is thus of somewhat different construction from those of the other three great sanctuaries of the Maltese group of islands: the interval between the outer and the inner walls is some 3·30 m., not quite so great as at the Gigantia, 3·50 to 4 m., but about the same as that in the older portion of Mnaidra and at Hagiar Kim; but instead of its being entirely filled with smaller stones and earth, there is a second line of orthostatic slabs, as is the case at Hagiar Kim on the right of the entrance into A.

On the S.W. of the doorway into C, one of the large orthostatic slabs of the upper part of the façade had fallen, and lay in front of the entrance. The slabs of the lower part have been much broken on this side, though they are still *in situ*. The western portion of the façade beyond this point is somewhat more ruined, though two of the large footing blocks can be recognized. It is probable that J is a later addition, and that the massive façade never extended so far; for it is certainly asymmetrical.

The area[1] in front of the façade enclosed by its projecting wings was paved with small slabs of stone (Pl. VI.). This paving is (except for a small portion of it at *a* which was inadvertently removed during excavation) perfectly preserved at the eastern extremity; and here are a few blocks of

[1] For the area in front of the Gigantia cf. Mayr *op. cit.* 654, 14. There is a similar paved area in front of Mnaidra, which was cleared during the excavations of 1910 (cf. *infra*, 94).

an edging 0·23 m. in width, rising about 0·10 m. above the level of the pavement (see Pl. IV. Fig. 2). This edging was not traceable further to the W., but so far as it was preserved it followed a regular curve.

In the western portion of the area the pavement has disappeared, and nothing is left but the smaller stones or cobbles which probably formed its bed. This, outside J, seems to have been some 0·60 m. thick, while in front of the entrance to C, the rock was reached at 0·81 m. below the level of the doorstep.

Among the pottery found in this front area, the pavement of which lay from 0·15 to 0·41 m. below the modern ground level, were some fragments of a dish in red, slightly glazed pottery of the Roman period, of the kind known to English archaeologists as imitation or false Samian ware.

The other external walls of the building are built upon a less substantial scale, and it is very possible that the northern encircling wall was destroyed to allow of the addition of the rooms on the N. That to the W. and N.W. outside F, E, H, is constructed on the same principle as the façade, with a double line of orthostatic slabs, with packing between them, and packing again between the inner line and the inner walls of these rooms, while that on the E. is constructed of much smaller stones. It is not very clearly traceable outside N, but outside A it can be easily recognized. It is here a double wall of small stones, with filling between them of considerable width, so that it may well have risen to some height, though it is now preserved only to a height of a single block of stone (see below).

A considerable number of loose stones were found immediately outside it, and in tracing the line of the wall, under some of these stones, a small shaft cut in the rock was found. It is 1 m. in depth, 1·31 m. long, and 0·40 m. wide at the top; and diminishes to 0·66 m. long, and 0·37 m. wide at the bottom. Its purpose is uncertain: it contained dark reddish earth which was carefully examined. A small amount of pottery, later than that found in the building itself, was discovered, but no bones, neither human nor animal. As it is certainly of later date, its presence is a convincing proof that the line of the outer wall was correctly recognized, and that the stones which lie outside it are mere debris.

The natural rock was found close to the surface on all sides of the building, at a depth varying as a rule from 0·15 to 0·60 m. It comes to the surface at a little distance on the S. and W., and on the E. is only

some 0·15 m. below it. On the S. the greatest depth of soil (0·45 m. to 1·07 m.) occurs, and here a considerable amount of pottery was found, and also a curious rock ledge, with an edging so regular as to seem artificial. Further S., however, the rock comes right up to the surface of the field.

We now turn to the interior of the building. The south-eastern portion of it (A B) is accessible from the S. only by an entrance in the façade. The inner doorway is 1·17 m. in width, but that of the outer one is somewhat greater, for while on the S.E. the corner block is flush with the inner doorway, on the S.W. there is no vertical slab, but a little paving of small slabs at a slightly lower level than the outer threshold, and outside the line of the inner door. Beyond this slab paving is the great block *a'* at the angle of the entrance and the façade, 1·82 m. in length along the front, and 1·17 m. in depth, the original height being, as usual, uncertain. The outer threshold, of small stones, is 0·08 m. below the level of the inner one, which consists of a single slab, but in the intervening space no pavement was found, and the thin, well smoothed blocks which line the side of it descend to a depth of about 0·45 m. more. Large loose stones were found in this space. Whether, therefore, there was a step down and up again is doubtful; but it is much more probable that a floor has perished or been removed.

On the inner sill, and rising to 0·40 m. above it a later filling was found, consisting of a thin wall of a single line of small stones on the inner side, packed with earth on the outer side. On the right of the sill is a smooth vertical slab, while on the left is a rough, almost unworked block, *c*, with the characteristic ropeholes (see Mayr, *op. cit.* 653, 12; 675, 44), which were visible above the ground level before the excavations were begun.

The doorway leads into a space from which open out two roughly circular rooms A B. Immediately in front of the sill and about 0·13 m. below it is a good floor of pounded limestone (known locally as 'torba') only traceable in this place; and in front of it again was a modern limekiln which occupied the N.E. portion of B but has now been removed. Its presence accounted for much of the destruction which the building has undergone; to provide material many of the blocks of the upper portion have been removed, while those of the lower have been broken and split with wedges, though in some cases the attempt to make use of them has been abandoned, as it proved too difficult to smash them up.

In the rest of B there seems to be a floor of hard earth about 0·30 m. thick, and about 0·30 m. above the torba floor in the doorway just mentioned: below it is a layer of loose stones 0·10 m. in thickness, below which again is the uneven rock bottom, to which in places small stones may be seen to have been fixed (cf. *supra*, p. 25).

Above this floor, up to within one foot of the modern ground level, the soil was loose, dark, and fine. In A the only floor to be found was the somewhat uneven natural rock.

In the W. portion of the wall of B is a projecting block of stone *b*, opposite to the large block *c*. The wall is preserved to a maximum height of 1·82 m. and an average height of 1·52 m. above the rock. It is built of large rough blocks below, and smaller ones above: the work is very irregular, and there is no trace of coursing.

In A the wall is faced with slightly more regular slabs, about 0·90 m. in height, nothing being preserved above them. In one of them on the S. (*c′*) is a rope hole through the corner.

There is no access from A B to any other part of the building, and we must therefore return to the outside to visit the western group, which lies immediately to the west of B, and is the most important part of the edifice.

The approach to it is by a doorway in the main façade. There is a narrow doorstep, 0·28 m. wide, on the level of the footing blocks of the front, and then a threshold formed of a block of stone, broken in two, 1·53 m. wide and 0·15 m. across, rising 0·38 m. above the doorsteps both outside and inside.

In the doorway was found a stone pounder of triangular form, 0·052 m. in height, 0·08 m. along the base, and 0·035 m. thick, with a round hole pierced through it (*infra*, p. 49, No. 9). 0·08 m. below the inner step is the slab floor of the corridor C, which is 1·93 m. long and 1·44 m. wide, and is lined on each side with smooth-faced orthostatic slabs, rising to a height of 1·35 m., and apparently no higher in antiquity.

At the end of it is another threshold 1·35 m. wide, 0·15 m. across, and 0·20 m. above the floor level. (Compare the raised threshold in the East Building, leading into D, *supra*, p. 22). The slab on the right has been cracked through horizontally by the weight of the wall behind it, and repaired after excavation. That on the left has a hole for a rope through its north-west angle almost at ground level, the external diameter

of which is 0·15 m. Beyond this threshold the passage (Pl. VII. Fig. 1) widens out to 2·25 m. and there is a large orthostatic slab (*dd*) on each side; there is a round hole through each of them for fixing a bar, 0·25 m. in diameter on the right, and 0·20 m. in diameter on the left (Mayr, *op. cit.*, 653, 12; 675, 44). Both of these slabs have been cracked by wedges at the top, the intention being no doubt to break them up. These two slabs have also smaller rope holes low down, that on the left having two (the lower of which goes right through to the inner side of F, and that on the right, one (Mayr, *op. cit.* 681, 52). The former is supported at the base by a slab which lies on the pavement, and rises 0·28 m. above it. Next to it is a narrow pillar-like block, similarly supported, and forming a portion of the N.E. wall of F. Here was found a fragment of a pillar, 0·20 m. high, as preserved, and from 0·15 to 0·18 m. in diameter, with the usual slight circular depression in the unbroken surface (*infra*, p. 48, No. 3).

The passage enters D in the centre of its south side opposite the doorway leading into the apse H. It seems almost certain that D, E, F, G originally formed one large chamber, more or less oval in shape, and thus resembling the large areas, which are found in pairs in other prehistoric sanctuaries of the island: the apse, H, opposite the entrance, is of course much larger in proportion than the niche which in the other buildings occupies that position. At a subsequent period, the larger western apse was subdivided into the chambers E and F, D and G remaining unaltered.

D is thus a trapezoidal space, paved with slabs of stone, and serving as a kind of anteroom or forecourt to the three apses on its three sides. The flooring is well preserved over the whole extent of the room, and is on a level with that of the entrance passage. A number of small pebbles (not beads, for they have no string holes) about 0·002 m. in diameter, were found about 0·60 m. above the floor. On the right (east) side is the apse G, separated from D by a low wall formed of a single line of blocks, averaging 0·50 to 0·65 m. high, and 0·30 m. thick, as in the Gigantia (A, B, E). There is no regular passage way through it, nor is there a slab with a window-like opening in it, such as we see in Hagiar Kim (A). This apse is back to back with B, and the construction of its inner wall is similar to that of the inner wall of B, though it is preserved to a slightly greater height, about 1·80 m. (the two faces are 2·20 m. apart, the interval being filled with earth and stones), it being mainly composed of large blocks

below, and smaller ones above it. A pillar-like stone, 1·60 m. high, occurs in one place, with walling of small stones on each side of it (was a niche filled up here ?). In another place, a large block is still to be seen *in situ*, projecting considerably: it was kept in place by the weight of the blocks above it. The roof was probably a beehive roof, like those of the nuraghi of Sardinia; and the large blocks which have been found lying loose in some of these rooms[1], belonged, no doubt, to the upper part of the walls. They have been replaced upon them by us for convenience. Whether, in this and the other sanctuaries of the Maltese group, the apses alone were roofed with stone, is uncertain; but to those who are familiar with the architecture of the nuraghi of Sardinia, and still more with Hal Saflieni, it does not seem at all impossible, though Mayr will have nothing to say to the idea (*op. cit.* 681, 51; cf. *I.M.* 29).

The floor of the room is of torba 0·05 m. thick, with a layer of stones 0·05 m. thick below: in some parts of the room, a layer of small stones, just above the torba, about 0·10 m. thick, may be seen, and above it a layer of black earth about 0·05 m. thick.

Some 1 m. above the level of this floor, in the northern portion of the room, a human skeleton was found, with the bones in utter disorder (this was carefully noted by Prof. Zammit, who was present at its discovery), and an old break in the lower jaw. It is thus practically certain that it was a burial belonging to a period far later than the building.

At about the same level was found a stone 0·20 m. by 0·19 m. with a hole in it (*infra*, p. 49, No. 7).

In the extreme south-west corner we observe the bar hole of the entrance passage already mentioned.

Leaving G we re-enter D and find H on our right: the latter is, like G, separated from D by a low wall 1·02 m. in height and 0·76 m. in thickness, of small irregular coursed masonry: some of the blocks are only 0·15 m. in height.

There is a regularly formed doorway in the centre 0·74 m. in width, with a standing slab on each side of it. The level of the threshold is 0·38 m. above the level of the floors of D and H, and in D, along the line of this wall, and along part of the line of the low wall which shuts off G, may be seen some flat slabs at this level, *e*, which probably served as a bench or

[1] Some of those in G had stone wedges lying under them, as though they had been moved comparatively recently.

step. Same loose stones were found at about the same level in the centre of D, but that there was a higher pavement over the whole room is improbable, as it would not have agreed with the level of the pavement in the entrance passage nor with that of the doorway into F, though, on the other hand, it would have been flush with the stone which lies on the east side of the trough (see below).

The walls of H are of similar construction to those of G, and are preserved to a maximum height of some 1·50 m. above the floor, which is of torba, resting on the rock, at a level of 0·57 m. below the threshold of the entrance. On the floor level was found a small round limestone button, (*infra*, p. 50, No. 1), and a pear-shaped mace head of white marble, perforated at the smaller end (*infra*, p. 49, No. 12).

Some 0·90 m. above the floor a small stone trough *f* rather damaged, and oval in shape, measuring 0·68 m. by 0·37 m. inside was found, resting upon the earth. On this level a quantity of animals' bones were found. A line of vertical slabs enclosed a small niche or chamber I, the entrance to which was, however, blocked by a slab *l* placed between the two pillar stones which formed its sides. In it there was a hard layer of earth 1·07 m. below the modern ground level, which was about 0·15 m. thick and contained much pottery: below it was the rock. It projected only about 0·38 m. from the back of the slab dividing I from H.

Returning into D, we now examine the portion on the W. opposite G. It has been already suggested that this was originally one apse: it has been divided into two parts by a straight wall running from E. to W. At the N. extremity of this partition wall is a standing stone *g* (at the foot of which in D is a slab, serving to support it at the base), and at the N. extremity of the apse another, *h*, the latter being, perhaps, part of the original construction. Between them lengthwise, though they are not placed symmetrically in regard to it, lies a remarkable trough (Pl.VII. Fig. 2), cut out of a single boat-shaped block of Malta hard stone 2·66 m. in length, 1·11 m. in width, and 0·55 m. in thickness. The trough is divided by cross divisions into seven compartments; the total depth of each of these from the top surface of the slab is 0·34 m. and from the top of the cross divisions 0·18 m. It was found almost entire, only a small piece being broken off near the N.E. angle: a fragment of this was found by us in F and replaced, but soon removed by some modern vandal.

The smaller compartments and the cross divisions alike show

considerable traces of rubbing, being quite smooth, and it seems possible that it had been used for grinding corn or grain. In one of the compartments, indeed, a stone rubber was actually found. The earth in the trough, as in the one in H, was harder, but probably only owing to its consolidation in this place, and not to any difference in its nature.

This supposition would explain the fact that the slab *m* on the E. side of the trough, which has been partly broken, has a narrow edging on the E. and S., 0·065 m. wide by 0·025 m. high, as if to prevent the dispersal of whatever was ground or worked in the trough.

As we have already seen, the surface of this slab is 0·38 m. above the level of the floor of D ; but it is, for the reasons already given, difficult to suppose the existence of a later floor in D at this level.

One half of the space E to the W. of the trough was carefully excavated, and probable traces of an earth floor were found flush with the upper surface of the block in which it is carved ; while a probable floor of small stones about 0·12 m. thick (with much pottery just above it) was found at about 0·90 m. lower down, or some 1·80 m. below the modern ground level. This is flush with the bottom of the large slabs of the apse wall.

Below this floor was the reddish virgin soil, and 0·30 m. lower again the natural rock.

The other half of the space was not excavated below the level of the top of the trough, so as not to endanger the stability of the trough, which is only supported by the earth.

For this reason it is impossible to see the greater part of the wall to the S. of the trough, which is, as has been said, probably a later addition : its lower portion can, however, be seen in room F (Pl. VIII. Fig. 1). Here it is found to be constructed of fairly well cut, roughly rectangular slabs set upright, 1·06 m. high, with a foundation below them rising 0·23 m. above the floor, and coursed masonry above them, which is clearly inclined inwards : one course may be seen in F and two in E. This style of construction is seen nowhere else in the building, and approximates to that which is seen at Mnaidra in the north apse of E (Mayr, *op. cit.* 657, 18, cf. 675, 43), though it is far less careful. It forms another interesting example of the combination of orthostatic slabs and coursed masonry (Mackenzie, *cit. supra* 13), which may be observed in many other places in the Western Mediterranean (I may add to his list the prehistoric huts of

Lampedusa, cf. *Annals of Archaeology and Anthropology* (Liverpool) IV. (1911) 17), and in the British Isles. The room F itself is of irregular shape, being, as we have seen, probably fitted into a portion of an older apse.

It is entered only from D by a passage 0·96 m. to 1·06 m. in width: the threshold slab is 0·08 m. above the floor of D. The passage (Pl. VIII. Fig. 2) is formed by three pillar-like blocks on each side; the central one on each side is thinner, projects about 0·15 m. inwards, and stands upon a threshold block 0·23 m. thick and 0·08 m. high. With the lintel (now gone) in position above, this opening would have been similar to the door into H in Mnaidra, and have had the appearance of the window-like openings, often cut in flat slabs, which are so characteristic of the megalithic buildings of the Maltese group (Mayr, *op. cit.* 682, 52).

Beyond the threshold is another paving slab, and then comes a drop of 0·18–0·20 m. on to yet another, and a further drop of 0·15 m. on to the torba pavement of F.

The lintel blocks would have ensured the stability of the pillar-like blocks on each side of the doorway: they were further secured by stone wedges fixed in between them and the floor and base slabs. We found it necessary, however, to reset the three on the left of the passage: their stability was further secured by the re-erection of the block which we found lying inclined towards the east, it having fallen slightly from its original position. This was, however, quite clear from the existence of a hole 0·38 m. deep, 0·60 m. long, and 0·38 m. wide, in the floor of the room, while the bottom of the stone measures 0·51 m. by 0·35 m.

In clearing the hole we found the torba floor to be 0·05 m. thick; below came 0·12 m. of black earth, and then 0·20 m. of red virgin earth down to the rock. The hole was slightly enlarged, and the block cemented into it.

With the exception of the next block on the S.E. (mentioned *supra*, 40) there are no more of these pillar-like blocks in the walling of the room, and this seems another proof that the trough, the partition wall to the S. of it, and the passage leading into F are all additions of a latter date. The rest of the walls are formed of large slabs: that with the bar-hole across the main entrance (the next again to the S.E.) has been already referred to. On the south-east side was found a fragment of a column (no doubt a *baetylus*) similar to that discovered in the entrance passage, 0·14 m. high and 0·12 to 0·15 m. in diameter. In the only preserved end is a slight depression

0·075 m. in diameter, as is usual in these *baetyli.* Against the curved part of the walls of F were two niches (cf. Mayr, *op. cit.* 683, 53), formed by upright slabs and pillar-like stones. The easternmost of these, *i*, was covered by a slab 1·37 m. long by 1·01 m. wide by 0·18 m. thick: this was found lying *in situ*, but cracked in three pieces. It was supported by two small upright pillars 0·86 m. high, which stand close to, but detached from, the side walls, and by pressure against the side and back walls. A modern parallel, with which Professor Flinders Petrie has kindly furnished me, will be of interest. I quote his own words:—

> 'When passing through Bureyr in Palestine between Gaza and Askalon in 1891, I saw a small space, six or eight feet wide, fenced off from the road between the hovels of the people. The grass grew tall in it, quite untrodden. At one side against the side of a hovel were two stones or piles of stone supporting a stone slab, about two feet long, at about three feet from the ground. Upon the slab was a conical Roman corn-grinder. I could not get anyone to tell me about it, questions were ignored. My donkeyman later on treasured a conical corn-grinder found in my work at Tell Hesy, and carried it in the load for some days. He at last threw it away as too heavy. When asked why he had kept it, he said, "It was a good stone."'

The cover slab of the next niche, *j*, had been similarly supported, but was wanting: it might have measured about 2·25 m. long by 1·25 m. wide and its height must have been about 1 m. above the slab pavement of the niche, which is raised 0·075 m. above the torba floor of the room.

To the W. is a third niche, *k*, a good deal smaller, only 0·60 m. wide and deep: one side of it is formed by a pillar, k^1, which seems to be a part of the original structure (whereas the niches may very likely be posterior in date to it, as none of the stones tail back into the main walls), and the other by three stones placed one above the other, the middle one of which projects slightly inwards as if to support a shelf: this would have been 0·83 m. above the slab floor, which is 0·13 m. above the torba floor.

Inasmuch as the stability of these niches was largely maintained by their coverslabs, the pillar stones not being let into the floor, we found a certain amount of consolidation, mainly by cementing the bases of these stones, to be absolutely necessary, and this was carried out in such a manner as to be readily distinguishable from the old work.

The last 0·25 m. of soil above the floor in this room was yellowish brown (in contradistinction to the black fine earth, with considerable traces of burning, found above for about 0·45 m. as elsewhere in the building) and contained a very large quantity of pottery, all broken in ancient times, animals' bones, worked flints, etc. etc.

As we have already seen, J seems to have been separate from the rest of the building, and it was possibly a later addition. It was certainly only accessible from the S., but there are no remains of the entrance, the facade being entirely ruined at this point, and the line of its external wall is shown too definitely on the plan. The north-east side, on the other hand, is well preserved, and there seem to have been one or two niches (at *n*) against this wall. Here was found, loose, the only block with traces of the pit markings characteristic of the megalithic buildings of the Maltese group that has appeared in this building. It measures 1·06 m. long, 0·60 m. wide, 0·30 m. thick, and the ornamented surface (as at present preserved, but the block has been fractured) measures 0·40 m. long by 0·18 m. wide.

A part of the south-western wall is also preserved, to the height of one slab (about 0·60 m.) only, but its southern extremity is ruined. J′, at present almost entirely full of large loose blocks of stone, was entered from J.

The floor level is uncertain, only an isolated fragment of torba having been found at 0·60 m. below the modern ground level: this corresponds however with the bottom of the wall slabs, and must therefore be about on the original floor level. The rock is some 0·45 m. deeper.

In J, about 0·15 m. below the modern level, fragments of a modern bomb were found: the site is indeed said to have been used by the Maltese as a gun emplacement against the French who were holding Valletta in 1789.

The northern and eastern portions of the building are not preserved to so great a height, the walls existing only to a height of about 0·60 m. or a single block (and the blocks as in A are here more or less of the same height) above the floors, which are usually of torba.

An exception is formed by the room M, which lies to the N. of G, and has its S. wall back to back with it: this is preserved to a height of about 1·22 m. above the rock, which here has seemingly been levelled to form the floor. The eastern part of the wall has apparently been composed of or faced with thin slabs, which have fallen and been crushed under heavy

masses of stone from higher up the walls, possibly from the upper part of the S. wall: at the N.E. corner of the room is a doorway 0·73 m. in width with a threshold block 0·23 m. wide, on a level with the rock floor of the room. There is a rise of 0·15 m. to the next room to the N., L, which has a torba floor. The wall between M and L is only a single block thick, and whether, and, if so, how M was roofed is not altogether clear.

L leads into an irregular room Q, the walls of which appear to have been removed, To the N. of it a comparatively modern boundary wall runs N.E. and S.W.: its existence accounts for the destruction of much of this part of the building.

To the W. of L, and divided from it by a wall 1 m. wide, is another room K, with a torba floor 0·60 m. below the modern ground level. It, too, has lost portions of its walls.

To the E. of L and M is the space N, which was full of loose stones in such confusion that its plan and arrangements could not be ascertained. Immediately to the E. of the ruined E. wall of M, at from 0·60 to 1·20 m. below the modern level (at the latter depth is the rock) was a layer of fine black soil, in which was found a large quantity of pottery, worked flints, etc., and two elliptical sling-stones. (?) Further E. it was possible to recognize a hard clay floor, at about 0·75 m. to 0·90 m. below ground level, about 0·10 m. to 0·20 m. thick, with 0·08 m. of clay and soil below it: then came a layer of clay 0·02 m. thick, then 0·12 m. of soil, and then the rock: towards the N. these two floors appear to converge and then both disappear. The relation of these floors to the plan of the building has not been made out: the upper one is above the level of the floors of the southern and western portions of the building, but more on a level with that of the rooms to the E. and N. Nor was their existence noticed at the point where the large quantity of pottery alluded to was excavated.

In N indeed is a torba floor higher up still, 0·05 m. to 0·075 m. thick, with a layer of small stones from 0·05 to 0·23 m. deep below it: the rock is 0·50 m. down, and between the floor and the rock some pottery was found.

The exact extent of this floor cannot be determined with certainty, as it has perished a good deal, and the plan of the room can therefore not be determined by its means.

To the N.E. of it is a later wall of smaller stones to the E. of which are some ill-defined enclosures (at R) with a series of torba floors one

above the other, which seem to have been entered on the E., across a threshold slab.

To the N. of this later wall is the oval area O, with a torba floor 0·76 m. below the ground level: the thin upright slabs of the wall, which are about 0·60 m. high, rest upon a step of rock 0·53 m. below the modern ground level. It seems to have been divided into two by a low wall across its minor axis.

To the N.E. is the area P, with a torba floor 0·53 m. below the modern ground level. The walls of both of these areas are too thin for them to have been of any great height.

The whole building has now been enclosed by a boundary wall for its better preservation.

VI.—CORRADINO HILL: SOUTH BUILDING: Pottery and small objects.

Objects of Stone.

All objects meant to be used as implements or missiles were made of hard limestone from the Upper or the Lower Coralline Limestone beds. Larger objects not meant for use were made of the soft Globigerina limestone which lies between the two Coralline beds.

(1) A cylindrical pillar of limestone, 80 cm. long and 25 in diameter. The surface of the stone is roughly finished off and both ends of the pillar are, as usual in these megalithic buildings, slightly concave.

(2) Cylindrical pillar of limestone, slightly narrower in the centre than at the ends. Length 40 cm., diameter of ends 25 cm. Ends flat.

(3) Fragments of similar pillars.

(4) Portions of large circular and elliptical tanks of the usual type. The working is fairly careful inside but on the outside the tanks are merely rough hewn.

(5) Several flat slabs of hard stone used for grinding on and smaller pieces used for grinding with [note a shaped grinder (?) Pl. IX. Fig. 4].

(6) Flattish pieces of hard limestone each with a circular depression about 5–8 cm. in diameter [Pl. IX. Fig. 5]. These doubtless served as mortars, while some of the many smooth pebbles found on the site were used as pestles.

(7) Several natural stones of no fixed shape each pierced with a hole some 2 cm. in diameter [Pl. IX. Fig. 2].

(8) Pieces of a rough limestone ring 12–15 cm. in diameter. Similar rings occur at Hagiar Kim and Mnaidra [cf. *infra*, 87, 99].

(9) A large triangular pounder of hard limestone, 19 cm. high, with a hole near the apex and a broad slightly convex base. A smaller example [Pl. IX. Fig. 9] is only 52 mm. in height.

(10) A number of spherical stones of hard limestone, average diameter 5 cm. [Pl. IX. Fig. 8]. These may have been used as sling-stones. Some larger examples (diameter 7–8 cm.) seem too heavy for this purpose.

(11) A number of the usual Maltese 'sling-stones' of hard limestone, ellipsoidal in shape, with pointed ends. Average length 6 cm.

(12) A fine pear-shaped mace head of semi-transparent white marble, length 44 mm. One side is rather flattened, so that the section is not a perfect circle. The hole, bored from both ends, is very narrow and does not meet accurately in the middle so that it is difficult to see how the head was ever hafted firmly enough to be of service [Pl. IX. Fig. 3].

(13) *Objects of flint and chert.*

The flint of Malta is poor, and did not lend itself to fine working. The cores seem to have been remarkably thin and there are few implements which do not shew part of the outer surface. Many of the scrapers are of chert. Work is always confined to the edges.

A. Scrapers with a single worked edge.

(*a*) The under face shows the bulb of percussion and is entirely unworked. The upper is usually the outside of the core. The work is limited to fine retouching on one curving edge. Some examples are extremely thick. Most are clearly right-handed and have a convenient blunt rest for the fore-finger, but a few are fitted to the left hand. The outline of the implement roughly resembles a sector of a circle [Pl. X. Figs. 6 and 15].

(*b*) A slight deviation from the type is seen in certain flints shaped like a small segment of a circle, the part representing the chord being formed by a plane at right angles to the plane of the flat core [Pl. X. Figs. 3 and 12].

B. Scrapers worked all round or nearly so.

These differ from A in that the working is not confined to a single curved edge but extends almost all round the flint. The shapes vary.

(*a*) Roughly circular [cf. Pl. X. Fig. 9].

(*b*) Triangular, worked on two edges. One fine example 60 mm. in length and of very thin flint looks almost like a lance head [Pl. X. Figs. 5 and 11].

(*c*) Long and narrow rectangular, worked on two long and one of the short faces [Pl. X. Figs. 2, 8, and 14].

C. Flakes, practically unworked.

(*a*) Roughly triangular flakes with one sharp point. No working [Pl. X. Fig. 1].

(*b*) Triangular pieces with a wedge-shaped point (*i.e.* a point formed by a dihedral angle). These are precisely similar to the *burin* of the Magdalénien period in France. They show no working [Pl. X. Figs. 4 and 10].

It is possible that these, of which there are four, were formed accidentally in breaking up flat cores to obtain scrapers of type A 2.

(*c*) Long thin flakes with three facets on the upper face [Pl. X. Fig. 7].

(*d*) Two examples of the last, retouched on one of the ends (*grattoir*) [Pl. X. Fig. 13].

(*e*) Small, thin, shapeless flakes, quite unworked, with one sharp edge which may just have been used for cutting.

The flint is that found in nodules in the Globigerina limestone which outcrops over two-thirds of both Malta and Gozo. The portions of the rock which surrounded these nodules when in position were often changed to chert. This was occasionally used for implements in place of flint, but it was ill adapted for flaking. In fracture it shows no bulb of percussion.

Miscellaneous small objects.

(1) Portion of a conical limestone button of the Hal Saflieni type.

(2) Two small borers of bone, both broken at the end.

(3) Two pieces of fossilized sharks'-teeth.

(4) An earthenware bobbin, 25 mm. in diameter at the ends and restricted at the centre, where it is pierced by a hole at right angles to its axis. (Cf. examples from Hal Saflieni [*Second Report*, Pl. XIII. Fig. 3], Hagiar Kim (*infra*, 89), and Mnaidra) [Pl. XXVII. Fig. 3] (*infra*, 103).[1]

(5) A small earthenware object shaped like a bulb with part of the stalk, height 35 mm.

The Pottery.

The pottery of Ix-Xaghra ta Cordin is the most extensive series as yet available from a Maltese site, some four hundred boxes having been gathered and examined. The majority of the fragments are unfortunately very small. It is all hand-made.

The numbers in round brackets refer to Professor Tagliaferro's classification of the Hal Saflieni pottery in the Liverpool *Annals of Archaeology and Anthropology*, Vol. III. In the present report the chief aim has been conciseness.

A. Rough faced wares (ornamented before firing).

(1) Unornamented[2] vases usually of large size (A 1).

Specially noticeable are several hundred of the rough open dishes with a low lip and notched rims, of which a complete example from Mnaidra has been restored [Pl. XXV. Fig. 2, No. 2].

(2) Scale ware. Clay and surface as usual, ornament in relief.

(*a*) Vertically fluted (C 4).

(*b*) Small overlapping fish scales (rare) [Pl. XII. Fig. 1].

(*c*) Large overlapping scales.

(*d*) Large veined leaves or scallops. In three fragments of a single vase, the leaves and veins are indicated in line alone, and there is no relief (cf. Santa Verna and Mnaidra).

(*e*) A great number of small vases of the open cup shape are of refined clay, have a yellow slip, and are ornamented with long parallel scales (C 8) [Pl. XII. Fig. 2].

In two fragments of this kind, the scales are arranged horizontally instead of vertically.

[1] I think these may all be votive models of stone table legs.—T. A.

[2] A piece of rough grained red ware has a five-pointed object in relief (cf. similar pieces from Hagiar Kim and Mnaidra, Pl. XVI. Fig. 1, No. 5; Pl. XXVI. Fig. 1, No. 15).

In a remarkable vase, with a rather flat bottom and a high vertical rim, the latter is of a scaly appearance, and is encrusted with a creamy white substance, while the bottom shows a rude curvilinear pattern incised before firing, and filled with a white paste.

(3) Pitted ware.

In some very coarse examples, all from one vase, the pits are made with a blunt stick end 8 mm. in diameter, and are so deep that their edges have risen and roughened the surface of the vase.

In the better examples. the surface is smooth, but has little or no polish, though the inside of the vase is occasionally polished. The pits are circular, elliptical, or linear. (B 2.)

The finest pieces of all have a slight polish, while the pits are in the form of crescents or mere punctures, occasionally filled with white.

(4) Studded ware.

(*a*) Mostly rough-faced reddish- or greyish-yellow ware with circular studs separately made and then stuck on.

(*b*) Fragments of three vases of good grey ware, with elliptical studs cut on the vase (cf. Santa Verna) and white filling in the interstices. The studs themselves are polished. One of these vases is an open flat bowl with a low vertical rim. The rim is studded, while the well polished bottom has an incised design of double-hatched festoons [Pl. IX. Fig. 6].

(5) Line ware.

Rough-faced ware, very rarely smoothed over, incised before firing. Design of parallel vertical lines set close together and often white-filled (G 17). Occasionally the lines are irregular in direction and even cross one another.

B. 'Maltese' slip ware.

For details of the clay and surface see Corradino East (*supra*, 30, 32) and Santa Verna (*infra*, 118). Unincised vases (E 10 and 11) are not very common. There is occasionally intentional coloration on the rim (cf. Santa Verna).

I. Vases incised after firing.

(1) Incisions are made with a fine but *blunt* point, and do not cut through the polish. They are often hardly visible. Simple curved designs.

The frequency of this type of ornament shows that it was not, as might have been imagined, a preliminary sketch, to be afterwards gone over in sharp incision.

(2) Incisions made with a fine *sharp* point, and sometimes white filled.

Often they are rectilinear, and consist of vertical parallel lines, single and double lattice (G 18), or hour-glass ornament.

Curved designs are more usual; festoons in single or double line, sometimes in opposed pairs, being common. But the design of at least two-thirds of the vases is founded upon a single element, the curved band of varying breadth. This is filled either with curved lines running in its own direction (Pl. XI. Figs. 14 and 17) or with single or double straight or slightly curved hatching (Pl. XI. Figs. 15, 16, 21, 23, and 25). These curved bands are often covered with bright red pigment. The covering of single lines of incision with colour is much rarer than at Hal Saflieni (G 21).

Occasionally the lines of the designs are some of them toothed (G 22) or the spaces between them are filled with dots (G 23). There is one fragment of a plate of the Hal Saflieni type (G 25 and 26).

The ornament consisting of a small circle at the extremity of a curved line is common.

(3) Incisions made with a *broad* sharp point.

These are not common in this ware. The typical curvilinear designs with hatching are occasionally incised in this way and we thus get a stage half-way between type B. I. 2 and B. II. 1. The best example is shown in Pl. IX. Fig. 1. The broad point is never used on fine small vases as it is at Santa Verna.

Occasionally this broad point is double, *i.e.* it consists of two fine points about a millimetre apart.

II. Vases incised before firing.

(1) Corradino incrusted ware.

This pottery, first noticed at Corradino West, occurs in such comparative profusion at Ix-Xaghra that it seems worth while to give it a name which will connect it with the Corradino buildings. The ware is the usual 'Maltese' slip ware and the colour is thus grey, brown, or reddish. The technique was never applied to small vases, as the depth of the incision would have weakened the thin walls. It may save confusion to remark

here that this fabric is clearly distinguishable from Bahria cut-out ware by its surface, which is harder and usually better polished, its designs, which are simpler and sometimes curvilinear, and its incrustation which is often heavier. The white on the Bahria vases is strictly speaking always a filling (*P.B.S.R.* v. p. 160).

The incisions may be divided into two types, the former narrow (about 2 mm. in width) and the latter wider (5 to 10 mm.) These last are used singly or in pairs, chiefly to form bands beneath the rim of the vase [Pl. XI. Figs. 1, 4, and 11], whereas the narrower may be combined either in parallel groups beneath the rim or in various more elaborate designs [Pl. XI. Figs. 2, 5, 6, 7, 8, 9, 10, and 13]. In the case of simple rim ornament the incrustation covers not only the incisions but also the spaces between them [Pl. XI. Fig. 5]. (This is true incrustation as opposed to filling.) The outer band of a group is often set with fine oblique toothing on its outer edge [Pl. XI. Fig. 6].

The more advanced patterns are not complicated. They often reproduce, as far as is possible in this clumsy technique, the single-hatched curvilinear designs of the more usual incised ware B. I. 2 [Pl. XI. Fig. 7]. An arched pattern formed by a group of parallel curved lines or two thick bands is not uncommon [Pl. XI. Figs. 5, 6, and 8]. The most complicated design is that shown in Pl. XI. Fig. 2.

(2) Dot and line ware.

The vases are often large, and the surface never has more than a poor polish. The design is usually in curved lines, the spaces enclosed by them being filled with dots. White filling was probably universal.

III. Painted wares.

The ware is of the ordinary 'Maltese' slip type, and there is never any specially prepared or specially chosen light surface. The matt paint—if paint it can be called—is laid on in simple designs of wide or narrow bands. There are only twenty-two fragments in all. In five of these the paint is the usual red pigment, in the rest it is of a clay colour, which is often barely visible on the grey or brown surface of the vase. See Fig. 6.

This ware was found in several parts of the building, viz. in rooms B, N, G, F, H, and W. In H and W it was on the torba floors, in N there was a piece in the clay floor, and elsewhere it was always at least a metre

from the surface. It must, however, be remembered that in the higher levels rough usage under the hoe and the plough has spoilt the surface of most of the sherds, and paint would doubtless have disappeared.

C. Various wares.

(1) Four pieces of Bahria red ware (*P.B.S.R.* v. p. 156).

(2) A piece with a light slip identical with that of the Santa Verna painted ware Type C. 3. a.

(3) Pieces of a very large vase of a gritty yellow clay with a fine thick red polished slip which easily flakes off. This vase resembles no pottery as yet found elsewhere in Malta.

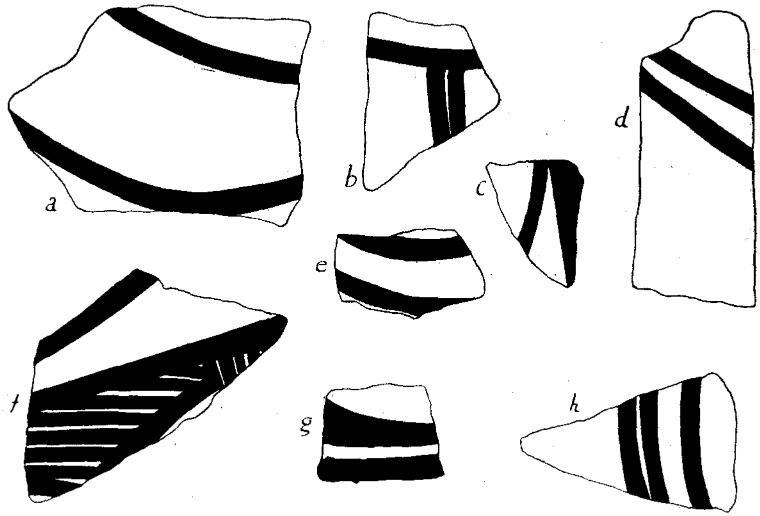


FIG. 6. (½)

The handles.

A. String-holes.

These are pierced, usually vertically, in a small ridge or knob on the body of the vase [Pl. XII. Fig. 13]; or the hole enters the vase-rim above and passes out on the side about a centimetre down.

B. Rope-holes.

(1) The tunnel-shaped [Pl. XII. Fig. 8].

A round hole from one to two cm. in diameter is made in the thickness of the vase wall, which sometimes bulges inside the vase for the purpose.

On the outside of the vase only the two round entrances, about 4 or 5 cm. apart, are visible.

(2) The tube handle [Pl. XII. Fig. 7].

A cylindrical tube of clay is applied horizontally to the body of the vase. The ends are often splayed out.

C. True handles. [Pl. XII]

These are never of the tall type usual at Bahria. Looked at from the side the great majority do not form a single curve but have a sharp angle.

(1) The top is flattened [Pl. XII. Figs. 9 and 10].

(2) The top is curved slightly down and the angle is very acute [Pl. XII. Fig. 3].

(3) The angle is shaped into a pyramid [Pl. XII. Figs. 19–22].

Rarely the top of the handle, instead of being broad as in the above, thins down as it rises and goes up to meet the vase in a sharp point [Pl. XII. Figs. 11 and 12].

There are three examples of projections attached to the tops of handles. Two are horn-shaped [Pl. XII. Figs. 17 and 18] and one is of axe form (*ad ascia*) [Pl. XII. Fig. 16]. The former belong to the so-called tongue-handled vases. (For shape of vase see Fig. 8 *e*.)

The forms of the vases.

Hitherto Maltese pottery has been known mainly from fragments and except at Hal Saflieni it has hardly been possible to judge of the shapes. The Corradino South material has changed all this. It is true that only one vase was found intact and that few have been completely restored from the fragments. This is due to the fact that we have no true floor deposits. Pieces of one and the same vase may be found at almost any level in the two metres of deposit and may even be distributed over various rooms. Nevertheless careful restoration has enabled us to recover with certainty a long series of forms. The largest fragments and the most complete were found between the two *torba* floors in P. When the lower *torba* wore out another was constructed over it, the two being separated by a layer of stones, soil, and potsherds. These last may have been added to the soil purposely, but they are so large and join up so well that they may conceivably represent a floor deposit belonging to the lower *torba*. They

include some of the best pieces of 'Maltese' slip ware yet found, fired to a uniform dark grey, ornamented with fine incisions, which are covered with red pigment.

The forms may be classified as follows:—

A. Open dishes or bowls, usually without handle.

There were a few fragments of the open Hal Saflieni plate (G 25). Fig. 7. *a* is a finely shaped bowl. It probably had no handle, but merely string-holes passing obliquely through purposely thickened parts of the rim.

Fig. 7. *b* has a turned up edge and rolled rim. Its remarkable ornament, a combination of stud and incision, is shown in Pl. IX. Fig. 6.

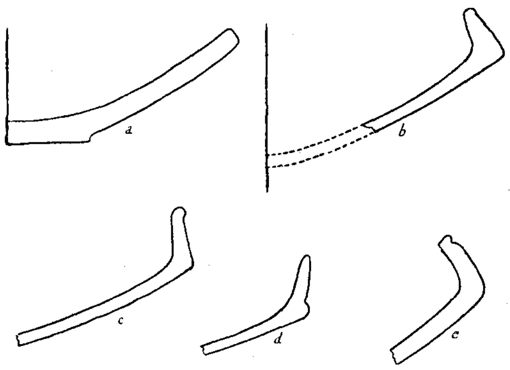


FIG. 7. (⅓)

Figs. 7. *c d* and *e*, are further examples. Of these *d* has a practically flat base and *e* has a turned in rim. All three are incised.

B. Bowls with a tall neck and a handle. Figs. 8. *a–e* and Pl. IX. Fig. 7 are the main varieties. Note the raised base in *d.*

d has a white incrusted scale pattern on its walls and a white-filled line pattern on the bottom.

e has a tongue handle which comes to a point. Pieces of such handles are seen in Pl. XII. Figs. 17 and 18. They are frequent at Mnaidra. Pl. IX. Fig. 7 is the commonest vase form in Malta. Most examples are at least twice as large as that shown here.

C. Bowls or cups with the neck turned inwards.

Fig. 9 is ornamented with fine incisions in the form of cross-lines.

Fig. 10 *a*, *b* were probably similar in form. They were not, as might appear at first sight, of the so-called 'lamp' form of Hal Saflieni.

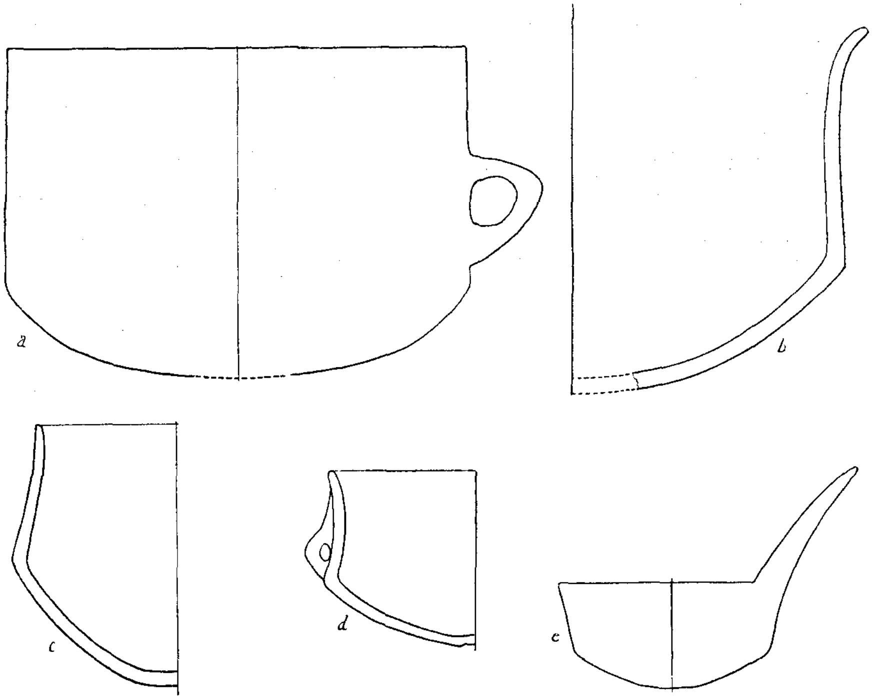


FIG. 8. ($\frac{3}{10}$)

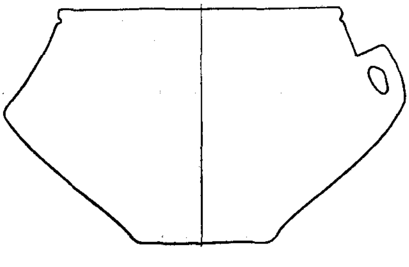


FIG. 9. ($\frac{1}{3}$)

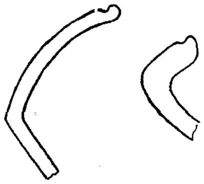


FIG. 10 (*a* and *b*).

D. Globular vases with a narrow neck, and string-holes as handles.

Fig. 11 is a fine fragment of a large vase *a bottiglia* showing its ornament which is incised and red covered.

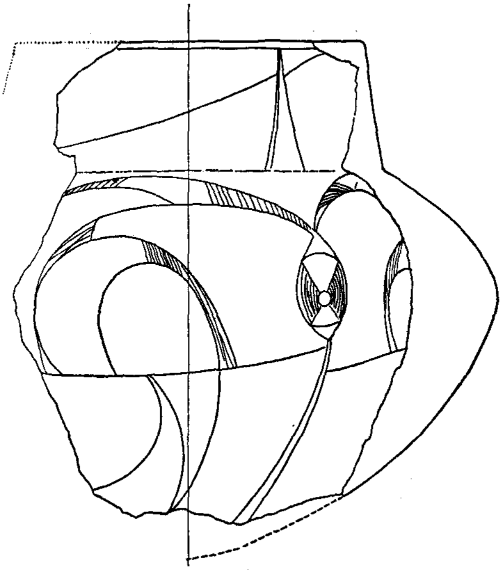


FIG. 11. (1/3)

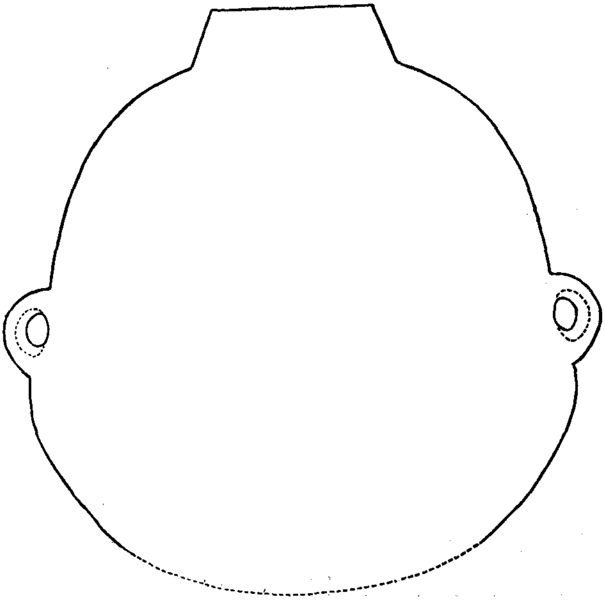


FIG. 12. (1/4)

F. Small rough vases.

Figs. 14 *b–d*, are the most complete examples.

It might have been expected that the great mass of pottery found at Corradino South would have thrown some new light on the comparative dating of Maltese wares. It is clear that among so many varieties, some must have begun earlier than others, and yet every new site excavated yields them all. Thus at Corradino South we have every type of prehistoric ware known, except Bahria cut-out ware and Santa Verna painted ware. This perhaps points to the fact that the Maltese buildings continued in use over long periods of time. In this case the comparison of the pottery from under the various successive floors of *torba* found at Corradino South might have been expected to give tangible results.

The best examples are:—

(1) A double torba floor in R.
(2) A clay floor in C.
(3) A torba floor in P.

Elaborate tests were made by the excavators themselves under and over each of these floors. In all cases the pottery from both positions was exactly alike, that is to say that no type occurred above which did not also occur under the floor and frequently in the floor itself, and similarly no type occurred under which did not also occur above. Moreover, in any one type, the specimens found above shewed no advance on those found beneath.

Thus all hopes of extracting any information as to the comparative dating of the various types were disappointed. One remarkable fact, however, was noticed. From the rarity of incrusted ware at Corradino East, it seemed possible that this ware belonged either to the beginning or the end of the period of habitation. The earlier date seemed confirmed when in the thick clay floor of N at Corradino South the ware was found to occur in proportionately very large quantities. One box of sherds from this floor yielded sixty-five examples, the average number per box over the whole site being less than two. It seemed not improbable that when the floor was made the pottery most in use was this incrusted ware.

Subsequent investigation, however, has suggested another possibility. The only parts of the site where the ware occurred with any frequency were N (under, in, and over floor), R (under *torbas*), M (seventy-two pieces

from a very small room), and two pits made early in the excavation, one of which lay over M and the other in or near N. In fact out of about 500 pieces found on the site at least 300 came from the small space MNR. This must be something more than mere coincidence. The space in question lies outside the main building, which clearly consists of the bi-apsidal AB and the tri-apsidal CDEFGH. This suggests the possibility that the smaller rooms K, L, M, N, O, P, Q, R, are a later annex to the main building and that they were still inhabited after the main part had gone out of use. In this case, the incrusted ware may be late and the clay floor in N might be a gradual growth. The floor is certainly very thick and varies considerably in colour and texture.

This, however, is conjecture, and the fact remains that we do not yet know the time-relation of incrusted to the other Maltese wares. The only piece of evidence we have is that three pieces of it occur at Santa Verna, which, judging by its painted pottery and its Bahria cut-out ware, would seem to be later than Corradino South. In any case incrusted ware ran in part parallel to the other incised type of Maltese slip ware, a fact which, apart from the occurrence of both together over and under floors, is clear from the similarity of the patterns. That the incrusted ware came into use later is possible, but not certain. In that case its absence from Hal Saflieni, which, with its Bahria cut-out ware and more advanced painted ware, must run later than Corradino South, is a puzzle. Even if it is a local product of Corradino, it is amazing that, while it reached Gozo (Santa Verna and Xeuchia), it failed to traverse the quarter of a mile that separates Corradino from Hal Saflieni.

VII.—HAGIAR KIM.

The object of the excavations of 1910 both at Hagiar Kim and at Mnaidra, which is only half a mile away down the hill, was to ascertain whether in the original excavations of both buildings in 1839 and 1840 under the direction of J. G. Vance,[1] and in the supplementary work at

[1] The bibliography given by Mayr, *P.M.* pp. 17, 28 notes = *V.D.* pp. 657, 664 is as follows: Houel, *op. cit.* Pl. CCLX. (I may add Bres, *Malta Antica Illustrata* (Rome, 1818), p. 137); La Marmora, in *Nouvelles Annales de l'Institut*, i. (1836), p. 32; (after the excavations) Vance, in *Archaeologia*, xxix. (1842), pp. 227 *sqq.* and Pll. XXIII.–XXVIII.; Lenormant, *Monuments Phéniciens*, in the *Revue générale de l'Architecture et des travaux publics*, ii. (1841), pp. 497 *sqq.* and

Hagiar Kim in 1885 under the direction of A. A. Caruana,[1] the ground plan had been completely discovered, or whether there were any additions to be made to it.

It was also necessary, inasmuch as previous explorers had unfortunately almost entirely neglected to preserve the small objects, and especially the pottery which they obviously had discovered, to attempt to remedy the deficiency. (Cf. *infra*, 71) 'No fragments of pottery, either from Hagiar Kim or Mnaidra, were ever exhibited in the Malta Museum between 1852 and 1902. It was only in the latter year, during the removal of the Museum to the new premises opposite St. John's Church, that two baskets full of fragments of pottery, found in a lumber room at the Public Library, were identified by the caretaker at Hagiar Kim as belonging to that prehistoric monument' (and as having been found, I may add, in 1885). See Tagliaferro in *Annals of Archaeology* iii. (Liverpool, 1910) p. 1; and *infra*, *loc. cit.* Finally, it was desired to carry out, with proper care, some absolutely necessary works of conservation and restoration.

In the course of ten days' work at each building satisfactory results were arrived at in all these respects.

At Hagiar Kim, so little alteration was made in the plan that it seemed unnecessary to make a new survey, and reference will therefore be made throughout to Mayr's plans (III., IV.)

Some trenching was done in the area to the S. of the building, as far as the Government boundary, along the line of which a new wall was erected.

The existence of a circular building was suspected at one point to the S. of the main building, where some large blocks of stone formed the

Pl. XXI. (the illustrations are very inadequate); H. Barth, in *Archäologische Zeitung*, 1848, pp. 346 *sqq.*, 362 *sqq.*, and *Wanderungen durch die Kustenländer des Mittelmeeres*, i. p. 210, n. 4; *Archaeological Journal*, ix. (1852), p. 299; H. Brunn, in *Bull. d. Ist.* 1858, p. 74; Waring, *Stone Monuments*, Pll. I. II. (who reproduces the illustrations from P. Furse's article in the *Transactions of the International Prehistoric Congress of* 1868 *at Norwich*, pp. 407 *sqq.*); Adams, *Nile Valley and Malta*, pp. 240 *sqq.*; Vassallo, *op. cit.* pp. 18 *sqq.*; Caruana, *Report*, pp. 9 *sqq.*; Perrot, *op. cit.* iii. pp. 300 *sqq.*

Mayr has not called attention to the following passage in Vance's report, which I give as it stands (p. 231): 'In those chambers which contained charcoal, or otherwise showed proofs of the use of fire, we generally found a round stone about one foot in height, and half a foot in diameter, with a hole drilled through the centre, decreasing gradually and slightly as it approached the bottom.'

[1] *Recent further Excavations of the Megalithic Antiquities of Hagiar Kim*, Malta, 1886.

base of a heap of smaller fragments, about 4 metres in diameter: on the S.W., a few of the blocks are apparently *in situ*, resting on the rock, which is only about 0·30 m. below the soil, while elsewhere these stones lie on the earth. Investigations within this space revealed only a few fragments of pottery.

Not far off, on the line of the new enclosure wall, we found a small cylindrical stone column, 0·50 m. in length, 0·17 m. in diameter at one end, 0·20 m. at the other. Between this heap of stones and the main building, going in a northerly direction, it was found that the rock, which elsewhere is from 0·30 to 0·60 m. below the surface, dipped slightly, and that this space was therefore paved with rough pieces of stone.

The soil resting on this rock was in great part thrown out from the main building when it was excavated, and numerous fragments of pottery were found.

A careful examination of the modern enclosure wall f_2, g_2, h_2, was undertaken, with the result that no evidence could be found for its antiquity, which is maintained by Caruana,[1] but rightly doubted by Mayr (674, 41). Some of the blocks on its N. side are set upon the rock, but on the S. it rests for the most part upon earth, while at f_2 it has been built upon two fallen pillar blocks, which probably belong to the S. termination of the W. wall of N.

At h_2 the rock was found to dip, but no finds were made, the virgin soil being reached at about 1 m. below the surface.

The space bounded by this wall f_2, g_2, the facade of the main building, the wall d_2, e_2, and the building N, was cleared down to the rock. A large quantity of animals' bones, pottery, flints, and other objects was found (we may note a bone brassard and a pendant of black stone (*infra*, 90)): the pottery was, unfortunately, all in fragments, as the depth of soil was only 0·60 m. at the most, while in some places it was as little as 0·15 m., and one could not help regretting that previous excavators had not done their work better. Some of the slabs in front of the entrance were lifted by Professor Zammit's orders, and under one of them a hollow was found.

The large slab at the right of the entrance (Caruana, *op. cit.* Pl. I.), broken into two pieces, was raised on pillars and put together (Pl. XIII. Fig. 1). It no doubt belonged, as Mayr thinks (672, 39), to the upper

[1] His idea (*op. cit.* p. 4) that the tall stones *i i* are the jambs of a passage leading to I and L Mayr's G and H) is impossible.

portion of the façade. A trial excavation in the earth on which it rests revealed no pottery or other objects.

There does not seem to be any more reason to accept Caruana's statement in regard to the wall d_2, e_2, than there was in regard to f_2, g_2. As Mayr remarks, Adams (*Nile Valley and Malta*, Pl. V.) shows flagstones instead of a wall at d_2, e_2, and we found on the S. side of this wall scanty remains of irregular paving[1]: so that we may conclude, with Mayr, that, while this space was certainly a kind of forecourt (though not so regular as that in front of the S.W. building on the hill of Corradino) it was not enclosed by walls.

It was ascertained that the foundation blocks of the façade do not extend further S.W. than is indicated in Mayr's plan, and that he has correctly shown the termination of the last block.

How the actual S. angle was formed is not quite clear, however, as we have here very small stones.

Abutting on the great slab w_1 Adams figures a small building *e*. This was said by Salvatore Ellul, the caretaker, to have been erected within his father's memory by the first excavators for their convenience; and it certainly has no characteristics of antiquity. Pottery was found under it, but only at a depth of 0·60 m., and the rock lay 0·20 m. lower down. It was ascertained that the foundation block outside w_1 was 0·49 m. thick: under it was another, 0·30 m. thick, and the rock lay 0·15 m. further down.

We may now turn to the interior of the building. Mayr supposes that A and B are the most primitive parts of it, B having undergone later modifications. Attempts were made to test this hypothesis by examination of the few places where soil still remained; but, for reasons which are explained below (p. 73), the attempt was unsuccessful; nor did the pottery, which was, in a few cases only, found under the torba floors give any sign of belonging to an earlier period.

A trial excavation was made in the S.W. apse of A, but almost without result: the torba floor is 0·12 m. thick, and in some parts lies close upon the rock, while elsewhere there is as much as 0·30 m. between them.

In the north-eastern apse Prof. Zammit had already found fragments of a stone basin, and a stone pillar 0·40 m. in height, and 0·22 m. in diameter at the ends, tapering slightly at the centre, of the type common

[1] Here we found a round flat stone, apparently worked, 0·42 m. in diameter and 0·14 m. thick.

in these megalithic buildings: their purpose (seats, altars for incense, supports for horizontal slabs?) is not in all cases altogether certain.

The earth which it contained was completely cleared: the rock level varied from 0.70 to 0·85 m. below that of the threshold of the opening in the slab *d* through which the apse is entered (Pl. XIII. Fig. 2).

On the N. side there is a small piece of torba flooring 0·05 m. thick, which lies about 0·55 m. above the rock level; while on the S.W. side, against the stone N.W. of *d*, there is a slab at a somewhat lower level, upon which stands a small block of stone forming part of the screen by which the apse is shut off, measuring 0·55 m. high, 0·40 m. wide, and 0·35 m. thick: the vertical face is extremely smooth and well worked. In the soil a good deal of pottery was found; but we were unable to trace the stones radiating from the apse originally dividing it into segments indicated by Caruana [Pl. II.].

In the central area of A, the paving slabs were 0·16 to 0·18 m. thick, and the rock lay 0·12 m. below them.

The N.E. apse of B, which I agree with Mayr in attributing to a reconstruction, owing to the care with which it is built, had already been cleared, the clay having been reached at once and no finds made. The large stone next to r^2, shown in Caruana's plan as needing restoration (the portion to be added being indicated in red) has now been completed by the addition of the original piece.

In a small excavation immediately to the N.W. of the slab marked *n*, a small stone pillar, exactly similar to that found in A, was discovered among the materials thrown in, apparently by previous excavators, to make a level floor. It was 0·47 m. in height and 0·23 m. in diameter at the top and bottom. Some pottery was also found in the first 0·30 m. of soil: below came clay for a depth of 0·14 m. and stones for 0·23 more, neither of these layers containing any pottery; and below was the solid rock.

A little to the N.W. the rock is only 0·20 m. below the surface, and in places comes to the actual ground level, so that it did not seem worth while to disturb the torba floor of the rest of the area B.

An excavation in the niche 3 (γ) revealed the torba floor 0·13 m. thick, under the surface soil: the rock was about the same distance below, and a little pottery was found in the earth which lay between. The table which was lying on the ground near this niche (Mayr, 668, 33) has been replaced by Prof. Zammit. C and D had already been excavated by him

and Mr. Peet, and the work is described in the following passage from the *Annual Report of the Curator of the Museum for* 1909–10, p. 4.

"The floor of these two small chambers was excavated. This was not the primitive floor of the rooms, but a layer of red soil untouched during previous excavations. The original 'torba' floor existed at a depth of about 15 cms. and it could be well followed in some places. A few blocks of stone which formed a kind of pavement proved to be the jambs and the lintel of a pretty doorway which must have stood between the rooms C and D.

The pillars of this doorway, about 1 m. high, are well cut and finished: the lintel fits the two pillars and has a double curvature one along the front and the other along the top. In front, the stones are carefully pitted with small regular holes.

As this doorway cannot be reconstructed on the spot and its exposure to the weather would certainly spoil the delicate surface of the stones, the Committee agreed to remove it to the Museum for preservation.

In the red soil, under the blocks of stone, potsherds of the best neolithic type were found, also some burnished and incised ware, and some particularly fine hobnailed pieces. Two bright red fragments of large vases are of special importance. A small black cup, whole and well preserved, was found: it is conical in shape but somewhat flattened, 4 cms. high and 6 cms. wide at the base, with a thickness of 1 cm. on the outside: it is studded with discs. Near this cup a conical hard stone object was found 31 cms. long and 18 cms. wide at the base, ending in a sharp point. An axe-shaped stone pendant was also obtained from the material similar to that found at Hal Saflieni, but it is of soft stone. It is 38 mm. long, 25 mm. wide at the base and 4 mm. thick: at the pointed end it is pierced with a narrow hole. Fragments of animal bones and teeth of pigs, oxen, and sheep, were found with the sherds.

A fine flint implement of a dark slate colour, oblong with slightly rounded corners, was found under the threshold. It is 11 cms. long, 20 mms. thick and 65 mm. wide."

The removal of the table *u* for restoration (it has now been replaced and mended) gave occasion for the discovery of more pottery, including half of a bowl, a good flint implement, and some bones of animals.

In F the torba floor was broken through in one place, between the door and the entrance to the niche 6 (ζ): it was found to be 0·09 m. (3½ inches)

thick, and below it were stones for a depth of 0·30 m. (one foot) closely packed. Among them was a small quantity of pottery, and in one place charred wood was found.

Below the stones was an earlier floor (?) layer only about 0·30 m. (1 foot) above the level of B, of soft earth 0·08 m. (3¼ inches) thick, which contained only one or two pieces of pottery, and below this stones packed in for a depth of 0·27 m. (11 inches) again without pottery, and finally a layer of burnt earth resting on the rock, which is thus 0·74 m. (2½ feet) below the torba floor, and about on a level with the rock in B. The level of F has thus been artificially raised. The niche 2 (β) is indeed earlier in date than the steps leading into F, and the blocks of stone on each side of the entrance do not go below the level of the top step. The central slab, giving an entrance to the niche 6 (ζ) (Pl. XIV. Fig. 1) was restored by Professor Zammit. Investigations in this niche led to the discovery of some pottery which betrayed no signs of any difference in date from that discovered in the rest of the building, but the floor had been destroyed: the rock was reached 0·83 to 0·90 m. (2 feet 10 inches to 3 feet) below the threshold of the opening in the slab.

The question of the comparative date of A and F is not without difficulty. Mayr[1] (669, 676; 35, 45) maintains that the E. (N.E.) apse of F was never carried out, and that the W. (N.W.) apse of A, which is contiguous to it, is much earlier in date, belonging, indeed, to the most primitive part of the building. This view is not without difficulties: it seems curious that, if the building of the apse of F had been commenced and not completed, the part built with orthostatic slabs and ashlar masonry, which is actually in contact with the apse of A (Pl. XIV. Fig. 2), should have been begun before the demolition of the latter; and, there is no doubt that it would at first sight appear natural to suppose that the apse of F had actually existed, and had been demolished to permit of the construction of the apse of A. Against this, however, we must place the difference in the style of construction, that of A being a good deal more primitive, and the fact that the large niche 2 (β) in B presupposes the existence of A: we should also note the existence, in the stone next to *d'*, on the N.E. side of the niche 6 (ζ), of a horizontal slit to support the upper slab of another niche: the other side of this slab must have rested against the wall of A.

[1] He omits to notice Caruana's statement (text, p. 5) that the pillar *z* was found in the niche 6 (ζ).

Trial investigations in G and H proved to be fruitless: the ground had apparently been already disturbed, and the rock was very soon reached. In G the slab *f* 1 (Mayr 671, 37) has been restored to its original position, and the small pillar-like stone on the N.W. removed; while in H the stones *e* 1, *r* 1, have been restored, a large block at the E. end, forming part of the partition between H and B, has been re-erected, and the doorposts of the inner doorway of H have been set up.

Mayr has failed to notice the holes in the upper surface of the large upright slabs in G and H, some 0·10 m. in diameter and 0·20 m. deep, which may have been lewis holes, or have served for fixing on other blocks above. Vance (p. 233) speaks of that on the top of the highest stone, but gives a fantastic explanation, comparing it to the small bowl or trough 'lying at the entrance at the outside of No. 1 chamber (A), which, by some oversight, is not given in the plan.'

3·45 metres to the W. of the threshold of H, two blocks of stone were found, 1·20 m. and 0·75 m. respectively in length, both 0·45 m. in width, and 0·38 m. in height. They lay outside the large foundation blocks marked in Mayr's plan, and may, I think, have been an outer threshold; while an irregular block to the S. of them, the top of which is broken off, may be the base of a doorpost. A trench was made about 6 yards further W. running N. and S., and carried 0·40 m. down to the red virgin soil, through the grey earth thrown out of the building by previous excavators; and a certain amount of pottery was found.

In I a layer of loose soil still remained, and it proved to be productive in the W. half of the room: among the finds was a very fine flint blade. Below this layer there was a torba floor 0·10 m. thick, and 0·23 m. further was the rock: the intervening layer of earth and stones contained a little pottery, and some burnt stuff. The pottery was of the same date as the rest and threw no light on Mayr's hypothesis (676, 45) that I belongs to the second period of the building. On the W. side of the doorway half a small pillar 0·38 m. high and 0·16 m. in diameter with a small cavity at the top, came to light as the result of cleaning: it was standing by the larger stones (not apparently *in situ*) and has been left there.

There is a small hole in the centre of *k*′, about 0·08 m. in diameter and 0·05 deep, and a double hole on the inner side.

Vassallo's plan does not clearly indicate the nature of the hole in front

of *k'*. As a fact, there is a shelf of rock 0·62 metre (2 feet 1 inch) below the upper surface of *k'*, with two holes (not one, as Mayr, 676, 44) cut in it, each about 0·30 m. in diameter at the top, decreasing to 0·15 (6 inches) at the bottom. They are 0·35 m. (1 foot 2 inches) and 0·38 m. (1 foot 3 inches) in depth respectively: the shelf is 1·30 m. (4 feet 4 inches) wide and 0·30 m. (1 foot) high.

There is not therefore any difficulty in supposing the existence of an intermediate step (Mayr 670, 36). The stone next to *l'* shown in the plan is no longer to be seen. In the stone behind *l'* are two double holes.

The two large stones on the W. side of the niche 7 (η), one of which has fine punctured ornaments, have been restored to their places, and some smaller repairs have been done in I and elsewhere. The slab dividing the niche 5 (ϵ) from 7 (η) shows traces of fire: it is marked in Vassallo's plan as restored (cf. Caruana's text 5). Experiments in consolidation with silicates have been tried with success throughout the building.

The E. half of the building W has fallen away, the rock being exposed to a level below that of the ancient floor: the heavy foundation blocks have disappeared, and the wall slabs have therefore fallen and are gone; but in the western portion torba floors are still preserved. In the southern room there is first a layer of rather rough torba 0·22 m. thick, then a thin earth layer, then stone packing 0·18 m. thick, then a layer of burnt earth 0·05 m. thick, then a layer of earth 0·12 m. thick resting on the rock (Pl. XIV. Fig. 3).

In the torba and in the stone packing large pieces of rough pottery were found, and in the latter was a perfect circular stone mortar. In the earth below a little pottery was found by sifting, but the stratification is merely a part of the construction. In the next room to the N. there was a layer of earth 0·20 to 0·25 m. thick which contained much pottery: then came the torba floor 0·12 m. thick, then a hard red earth layer 0·09 m. thick, with a little pottery, including one piece (black with deeply incised lines) such as was found at Corradino (*supra* pp. 33, 53), then came stones for about 0·14 m., then red earth for 0·19 m. down to the rock bottom—the last two layers contained hardly any pottery. In the next room (*f* (λ) on Mayr's plan) there was a torba floor at a slightly higher level, 0·07 m. thick, then a packing of stones down to the rock, which is some 0·15 to 0·35 m. below the bottom of the torba floor. Investigations were made in the S. room of N. and a certain amount of pottery was found, the rock being

reached 0·30 m. further down than the level previously excavated, this being 0·80 m. below the N.W. wall.

At Y are the much dilapidated remains of another building, the plan of which cannot now be ascertained.

At s_2 is a doorway opening S.W., with a standing slab on the S.E. side of it, and a paving of slabs 0·30 m. thick resting upon the rock.

Despite the fact that here there is only about 0·30 m. of soil, a very large quantity of pottery (often very rotten from exposure to moisture), flints, bones, etc., has been found within this area.

We may notice half of a circular stone basin 0·45 m. in external, and 0·34 m. in internal diameter, 0·29 m. high outside, and 0·22 m. inside, and a large oval stone measuring 0·45 by 0·37 m. Trenches were also made in the space between W, Y, and the main building: the rock was reached about 0·60 m. down, and there was very little pottery.

The large blocks at the base of the wall r_2, s_2, seemed to be *in situ*; but I agree with Mayr (674, 42) in considering the antiquity of all the walls which connect these buildings, and which are now mere field walls, to be extremely doubtful.

VIII.—POTTERY AND SMALL OBJECTS FOUND AT HAGIAR KIM.

Introduction.

Before the excavations carried out at Hagiar Kim during the spring of 1910, little was known about the pottery which had been found there at various times.

The first excavations were made in 1839, by J. G. Vance, but in his report, published in 1842, in *Archaeologia* XXIX., the only mention of the pottery found is contained in these few words (p. 229):—'Many fragments of very ancient pottery in the shapes of bowls, small jugs, lamps, and other utensils.' Mr. (afterwards Sir) Charles Newton in *Travels and Discoveries in the Levant*, Vol. I. p. 6, gives the following account of the quality of the fragments of pottery from Hagiar Kim and Mnaidra, of which he dispatched (in 1852) two cart-loads to the Museum at Valletta. 'The pottery I found to be of several kinds: black ware of a heavy brittle kind and ornamented with rude rows of notches or indented triangular marks, finer black ware, less brittle and more polished; coarse red ware, and

coarse and fine drab ware. Some of the finer black and drab ware had incised patterns of the rudest kind. All the varieties seem to have been baked in the fire, and have a polished surface': this account, although too short, is, on the whole, correct.

The late Dr. A. A. Caruana in *Further Excavations in the Megalithic Antiquities of Hagiar Kim*, p. 4, speaks in vague terms of 'Fragments of vases of many different forms, some worked with the chisel and some ornamented in relief,' found by him in 1885.

Dr. Albert Mayr collected at Hagiar Kim fragments of pottery of a fine clay, having a grey and well glazed surface, sometimes ornamented with incised punctuations (pit-markings) and linear design. (*V.D.* 86 = *P.M.* 703) Cf. also the 'Annual Report of the Curator of the Museum for 1910' (quoted *supra*, 67).

The above quotations contain all that was written on the pottery from Hagiar Kim up to 1910.

I wrote a short preliminary Report on the pottery found in that year, which appeared in the *Bulletin of the Malta Historical and Scientific Society* for April, 1911. That Report is to be considered as superseded by the present one.

The whole of the pottery found during the recent excavations was in a fragmentary state. Not a single vase was whole, although in a large number of cases the shapes of the vases, and often their dimensions, could be easily deduced from the sherds and often the number of sherds was very large indeed: they filled upwards of eighty boxes, large and small, which were removed to the Valletta Museum.

A considerable number were ornamented with reliefs, pit-markings, studs, or incisions; but the number of unornamented sherds was much larger. It is safe to state that the number of ornamented sherds did not exceed one-tenth of the whole number.

A cursory examination of the qualities of the ware and of the various styles of decoration reveals the fact of a great similarity between the pottery found at Hagiar Kim and that from Hal Saflieni. As a matter of fact, most of the classes in which the pottery from Hal Saflieni has been divided[1] were more or less represented at Hagiar Kim. In certain cases, as for instance in classes 3, 9, 20, more varieties were

[1] Vide 'The Prehistoric Pottery found in the Hypogeum at Hal Saflieni,' in vol. iii. (1910) of *Annals of Archaeology and Anthropology* (Liverpool), 1 *sqq.*

met with at Hagiar Kim, in other classes identical designs are of rare occurrence; but nobody can deny that on the whole the pottery from both monuments belongs to the same epoch. It is, however, probable that the quality of the ware and the style of decoration varied more with the uses to which the vases were destined than with the time in which they were used. So it is presumable that vases intended for ordinary domestic purposes were of a different material, shape and style of decoration from those destined for religious ceremonies, such as incense-burning or libations.

Had the excavations of Hagiar Kim in 1839 been conducted with the same care as those of 1910, it is probable that from the knowledge of the exact spot in which the various kinds of pottery were found, some reliable conclusion might have been arrived at as to the periods in which the different kinds of pottery had been used.

But hardly any importance appears to have been attached, seventy years ago, to the potsherds that were accidentally met with during the excavations. The material extracted from the various areas and rooms was considered as rubbish, and, without being sifted, was removed to places in proximity to the monument and left there in heaps or mounds. It was only after many years had elapsed that it was spread for agricultural purposes over the adjoining rocks, which were thus converted into arable land.

When seventy years later, the excavations were carried out on scientific principles, it was not possible, in many instances, to determine the exact spot where the potsherds had been originally deposited.[1]

In consequence of this uncertainty it is not safe to draw from the places where the various kinds of pottery were found in 1910 any reliable inference as to the relative age of the different chambers or areas of which the spacious monument is composed. The relative age may possibly be deduced from architectural or structural considerations.

When an attempt was made at piecing together suitable sherds belonging to the same class, with a view to reconstructing the vases to which the sherds belonged, as was done at Hal Saflieni, an unexpected and

[1] In confirmation of this view I may state that in a corner of one of the rooms several fragments of a large stone basin, 79 cm. in diameter and 41·5 cm. high, were found by Professor Zammit in 1909. Those fragments were easily pieced together, and the vase was nearly complete, but for the absence of a few fragments, which, after some time, were accidentally found in two different heaps of stones and rubbish at some distance from the main building.

insurmountable difficulty was encountered which prevented the continuation of the work. That difficulty arose from the fact that a very large number of sherds of the same class belonged to different vases and consequently only very few could be found belonging to the same vase, very often two or three. This is due to the great loss of potsherds attributable to several causes. First of all, as already stated, very little, if any importance was attached to potsherds in 1839, when the first excavations were carried out. The late Dr. Caruana,[1] speaking of those excavations, says: 'After clearing all around the exterior envelope of the Main Edifice of Hagiar Kim and removing the rubbish which choked some of the cavities, the principal areas and several minor appendant enclosures branching off, the explorers were satisfied that the excavations were complete.'

As no care seems to have been taken in examining and sifting the *rubbish*, it is presumable that a large amount of valuable sherds have been thrown away and irretrievably lost.

Moveover, the two cart-loads mentioned by Sir Charles Newton, of which up to the present moment no trace has been found, probably contained only selected sherds, and thus an enormous amount of sherds was also lost.

Add to this that, for many years, in a tent raised in the immediate vicinity of the Megalithic monument valuable or curious objects found therein, among which were very likely whole vases, and later on also ornamented sherds, used to be offered for sale to tourists and other visitors.

All these causes led to the deplorable consequence that only a small percentage of the ornamented sherds originally existing at Hagiar Kim were recovered in the exhaustive excavations of 1910. To confirm the soundness of these views and at the same time to ascertain with some degree of approximation what was that percentage, a calculation was made on the sherds of three different classes: viz. the 3rd (ornamented with pit markings), the 9th (ornamented with studs), and the 18th (ornamented with incised lozenges).

In class 3 out of a total of 142 sherds from several places (*vide* annexed Schedule) no less than ninety-four belonged to different vases; so that, on an average, not more than one or two fragments of each

[1] *Further Excavations in the Megalithic Antiquities of Hagiar Kim*, § 4.

vase were recovered. Taking into account the size of the sherds and the probable size of the vases, deduced from the thickness and the curvature of the sherds, it may be safely inferred that not more than five or six per cent. of the original sherds of this class were recovered.

Practically to the same result led the calculation made on the sherds of class 18, where, out of eighty-eight sherds, sixty-two at least formed part of different vases.

A higher percentage (eight to ten) was obtained in class 9, where, out of sixty-two sherds, twenty-one belonged to different vases.

Similar calculations may be made in other classes where the style of decoration admits of distinguishing whether two sherds belong to the same vase or not. But the results arrived at in the above classes are sufficient to convey an idea of the small percentage of the ornamented sherds recovered and of the extreme difficulty and, in most cases, the utter impossibility of reconstructing, even partially, vases, as was done so successfully at Hal Saflieni.

With the object of giving a clear idea of the distribution of the various classes of sherds in the different places, in or around the monument, the annexed synoptic Schedule has been compiled. From a perusal of the Schedule it appears that, with the exception of the classes 12, 13, 14, 15 grouped as Section F (red ware variously ornamented), and of class 16 which consisted of only one large jar at Hal Saflieni, all the other classes from 1 to 24 are more or less fairly represented at Hagiar Kim, although distributed very unevenly.

A few remarks on each Class.

Class I.—Unornamented and unpolished ware.

A very large number of sherds, about 75% of the whole, belong to this class. The ware is generally coarse and thick; but a good number are thin and less coarse. As the fragments are for the most part small, the shape of the vases is, as a rule, undeterminable. However, fragments of large jars, jugs, basins, and pots of various sizes with flat bottoms and various shapes of handles, were easily distinguishable in many cases. They served evidently for ordinary household purposes.

A large basin, 68 cm. in diameter and 13 mm. thick, appears to have been the largest vessel in the whole collection.

SCHEDULE SHOWING THE DISTRIBUTION OF THE VARIOUS CLASSES OF POTTERY AT HAGIAR KIM.

Locality.	Section / Class	A. Unornamented.	B. Pit-marking.	C. Relief.	D. Studs.	E. Polished.	F. Red ware.	G. Incised.	
	Class	1	2. 3	4. 5. 6. 7. 8	9	10. 11	12. 13. 14. 15	16. 17. 18. 19	20. 21. 22. 23. 24
A. N.E. Apse		1	3	4. 6	...	10. 11	...	18.	20
,, S.W. Apse		1	...	...	...	10. 11	...		20
B.		1	3	4	...	10. 11	...	18.	20
B. Niche 3 (γ) in and under Torba floor		...	...	4. 7.	...	10. 11	...	,, 17.	20
Court		1	...	4. 5. 6. 7. 8	9	10. 11	...	,, 17. 18.	20. 23
Do. (inside wall of) West of Mod. Entrance		1	...	4	...	10. 11	...	,, 17.	20
Do. (outside) South		1	3	4. 5	...	10. 11	...	,, 17.	20
Outside New Entrance		1	3	4. 5. 6. 7	9	10. 11	13	,, 17. 18.	20. 21. 23
Outside the slab w_1		1	3	4	...	10. 11	...	,, 17.	
I.		...	3	...	...	11	...		
I. (Above floor)		1	...	4. 5. 6. 7	...	10. 11	...	,, 17. 19.	20. 23
I. (Hole South of)		1	...	4	...	11	...		20
I. (Under Torba floor)		...	...	...	...	10	...		20. 21
I. (Outside)		1	3	4. 5	...	10. 11	...	,, 17.	20. 21
H. (Outside to West)		1		4. 6	9	10. 11		18.	20
N. Outside)		1	2. 3	4.	9	10. 11	...	,, 18. 19.	20. 21. 22. 23. 24
N. South-East room		1	3	4. 6. 7	...	10. 11	...	,, 17.	20. 21. 22. 23
W. (South room under floor) ...		...	...	4. 6. 7. 8	...	10. 11	...	,, 18.	20
W_2. (Middle room bottom) ...		1	3	4	...	10. 11	...	,, 17. 18.	20. 23
W_3. (Room *f* (λ) top)		1	3	4. 6. 7	...	10. 11	...	,, 17. 18.	20. 23
W_3. (Room *f* (λ) under floor) ...		1	..	4	..	10	..		20
Y.		1	3	4. 6. 7	9	10. 11	...	,, 17. 18.	20. 21. 23. 24
M.		1	3	7	...	10. 11	...		20. 24
F.		1	...	...	...	10	...		20

Sherds belonging to this class have been met with in almost every part of the monument, both internal and external, as well as in each of the three outlying dependencies marked N, W, and Y.

Class 2.—More or less coarse ware decorated with deep triangular pit-markings.

The number of sherds belonging to this Class is very scanty. Only a few fragments were found outside the ruins marked N. The pit-markings are less regular than those on the few sherds found at Hal Saflieni. As in the case of Hal Saflieni this style of decoration may be considered as sporadic. Nothing similar was found either at Mnaidra or at Cordin. In one of the fragments the triangular pits are associated with short parallel incisions grouped two together (*vide* Plate XV. Fig. 6).

In a few cases the form of the pits being that of a curvilinear triangle (*vide* Plate XV. Fig. 10), it is difficult to decide whether the sherd belongs to this or the following Class.

In Class 3 are included sherds ornamented with pit-marks or punctures of various shapes (vide *Prehistoric Pottery from Hal Saflieni*, Plate I.). There is more variety in the shape and size of the pit marks at Hagiar Kim than at Hal Saflieni (Pl. XV. Figs. 1, 4). At the former place it has been possible to make out the shape and size of the vases from the measurements of some of the sherds. Thus, several bowls and a few jars could easily be distinguished and in some cases measured. The ware is generally fine, of a black, grey, brown, or crimson colour. As already stated in the Introduction, out of 142 sherds, no less than 94 belonged to different vases. This shows how extensive was the use of this kind of ornamentation. The pit-markings were in many instances, particularly in the case of the black ware, filled with white.

The greater number of sherds belonged to bowls with diameters varying from 12 to 28 cm., and necks varying from 3·5 to 5 cm. The thickness varied from 7 to 20 mm.

The sherds were spread all over the site, particularly in the outlying parts of the building.

Class 4.—Buff coloured ware decorated with straight or curved ribs or fluting in relief. (*Pottery from Hal Saflieni*, Plate II.)

The sherds belonging to this Class are very numerous. The ware is of medium thickness and coarse. The thin sherds belong, as a rule, to bowls, and the thick ones to jars or basins. In a particular case, a sherd

decorated with ribs had an unusual thickness of 35 mm. There is no particular place in which this ware was more abundant than in others, but it was evenly distributed in almost all places.

Class 5.—Coarse reddish ware decorated with overlapping rows of fish scales in relief (Pl. XV. Figs. 2, 8).

It has been possible to calculate the diameter of the base of a large jar (48 cm.) and that of a basin (54 cm.). The thickness of the ware was 13 mm. in the jar and 16 mm. in the basin. The jar does not appear to have been provided with handles.

Most of the ware belonging to this class was found in the Court leading to the Main Entrance. Although in a less quantity, sherds were also met with in the place marked S, to the S.W. of the Court, and also in I.

Class 6.—Ornament of veined leaves or scallops. (*Pottery from Hal Saflieni.* Plate III.)

The class is fairly represented in most parts of Hagiar Kim. Its sherds are in many cases associated with those of Class 4, although they are less abundant. It has been possible to ascertain that a large number of sherds belong to large basins, and to calculate the diameter (34 cm.) of one of moderate size—thickness 13 mm.—and that of a very large one (62 cm.). The latter with a shoulder 20 cm. high, and 20 mm. thick, is the largest ornamented vessel at Hagiar Kim.

There were also sherds belonging to large jars; but their sizes could not be calculated with a sufficient degree of approximation.

Class 7.—Ornament of overlapping leaves. (*Pottery from Hal Saflieni,* Plate IV. Figs. 1, 2, 4.)

Sherds of this class are less numerous than those of the previous one, although they are met with nearly in the same places. From the thickness of the ware and the curvature of some of the sherds, it may be argued that they formed part of large vessels; but it has not been possible to determine the shape of any of those vessels. The same difficulty was encountered at Hal Saflieni, where the class is fairly well represented.

Class 8.—Ornament of overlapping scales.

Sherds of this class are very scanty. Some were found in the Court, associated with potsherds of the other classes in the same Section C (ornaments in relief), and in the annex W, under the floor.

Class 9.—Ornaments with hobnails or studs. (*Pottery from Hal Saflieni,* Plates V. and VI.).

There are more varieties in this style of decoration at Hagiar Kim than at Hal Saflieni. The studs are not only circular, but also elliptical. In some cases they assume the form of spindles more or less elongated. The circular studs are of various sizes. Their diameter varies from 15 to 4 mm., and their distance from centre to centre from 25 to 5 mm. In a small grey bowl, 12 cm. in diameter, and a neck 2·5 cm. broad, the studs are elliptical and close to one another (Plate XV. Fig. 5). The studs are not always uniformly distributed. In some cases they are grouped in double rows separated by plain intervals (Plate XV. Fig. 3).

In an elegant handle of an elongated form, evidently belonging to a large vase, the studs, originally of a circular form, have been pressed downwards whilst the clay was still damp and given the form of scales (Plate XVI. Fig. 1, No. 7).

The vases decorated in this style have, as a rule, the shape of bowls.

It is worthy of remark that sherds decorated in this style were found only in five places, all situated outside the main building, viz.: the Court, the two outlying dependencies marked N and Y, in a trench to the W. of the modern entrance, outside the wall, and in a place marked X outside of room H. It is probable that some of these sherds were removed from the main building in 1839 or 1885 and thrown into the places where they were lately found.[1]

Classes 10 and 11.—Pale yellow or buff ware in the former class, and light or dark grey in the latter. Although unornamented with pit-markings, relief, studs, or incisions, this ware has been separated from the coarse unornamented ware grouped in Class 1, because it is finer, worked with care, and covered with a fine highly polished or burnished slip.

Sherds belonging to these two classes are very abundant, and were found almost all over the site, as may be seen in the Schedule. The peculiarity of the two classes is the shape of the vessels, which, with a few exceptions, is that of bowls of moderate sizes.

In Class 10 a few measurements gave the following results:—

Bowl. Upper diameter, 14 cm. Height of shoulder, 3 cm. Thickness of ware, 6 mm.

Bowl. Upper diameter, 20 cm. Height of shoulder, 7·5 cm. Thickness of ware, 7 mm.

[1] A small cup decorated in this style was found within the main building in room C by Professor Zammit in 1909 (*supra*, p. 67).

The smallest bowl in this class measures 8 cm. in diameter, 17 mm. in height of shoulder, and 4 mm. in thickness.

In Class 11.—A fine pale yellow bowl measuring in upper diameter 12 cm., in height of shoulder 3 cm., and in thickness 5 mm. A larger bowl has an upper diameter of 24 cm., a height of shoulder of 7·5 cm., and a thickness of 7 mm. The largest bowl in the class measured 46 cm. in upper diameter, 11 cm. in height of shoulder, and 13 cm. in thickness.

There are three thick black polished sherds, which, being polished and unornamented, have been included in this class. Apparently they are portions of vases having the form of those which have been designated as 'Hanging Lamps' (*Pottery from Hal Saflieni*, Plate XVI.). They are portions of the uppermost part of the vases and terminate in a thick ring or collar, the inner edge of which forms the mouth of the vessel. The diameter of the mouth measures 24 cm. Although no other measurements could be taken, the form and thickness of the sherds show that they belonged to large vases.

Classes 12, 13, 14, 15, forming Section E of the pottery from Hal Saflieni, consisting of red ware variously ornamented, are wholly absent from Hagiar Kim, with the exception of a fragment of the neck of a small jar decorated with a band of parallel incisions running around the narrowest part of the neck. This solitary representative of a whole section was found at a place marked ζ outside the new entrance; but it has all the appearance of being sporadic, and of belonging to a date posterior to that of the rest of the pottery.

Class 17.—Light grey or brown ware more or less granulated, of medium thickness, decorated with parallel incisions, generally vertical and occasionally oblique. The shape of the vases, judging from the form of the sherds, appears to be that of bowls of moderate size. It has been possible to take a few measurements of two bowls of medium size. The smaller has a diameter of 13 cm., a height of shoulder of 4·8 cm., and a thickness of ware of 5 mm. In the other one the corresponding dimensions are respectively 16 cm., 8·2 cm., and 7 mm.

A large bowl has a diameter of 26 cm., and a thickness of 9 mm.

A cream-coloured bowl of an elegant form, 16 cm. in diameter, 6 cm. in height of shoulder, and 7 mm. in thickness, was decorated with oblique parallel incisions filled with white.

The filling of incisions with white or red was a common practice at

Hagiar Kim as well as in the other megalithic monuments in the Maltese Islands. It was also generally practised in the case of small pit-markings or punctures in the ware of Class 3.

Sherds of this class were found in a moderate quantity in the main building, both inside and outside, and in the outlying dependencies N, W, and Y.

As a separate branch of this class may be grouped some sherds in which rectilinear incisions fill the ground of a curvilinear design. This ornament was observed in a large fragment of a jar (Plate XVII. Fig. 3), the mouth of which had a diameter of 22 cm. Its largest diameter measured 28 cm., and its average thickness was 10 mm. No other dimensions could be measured from the fragment. There were, besides, some other ten sherds thinner and of finer texture probably belonging to vases of the same shape.

These sherds were found in the Court, outside the new entrance, at a place marked ζ, also at the bottom of W (middle room), and in Y.

Class 18.—Incised rectilinear ornament filled with white. (*Pottery from Hal Saflieni*, Plates VII. and VIII.) In each of those Plates the indication Class 17 should be changed into Class 18.

All the vases in this class, with one exception, are bowls. The decoration consists in single intersecting straight incisions forming lozenges. In the exceptional case the straight lines are double. As already stated in the Introduction, the sherds were fragments of 61 vases. They were found nearly in the same places as the sherds in Class 17.

Class 19.—Incised geometrical ornament filled with white.

The very few sherds of this class were found in only two places, viz:—In I above the floor and outside of N.

Class 20.—Incised curvilinear ornament filled with white. (*Pottery from Hal Saflieni*, Plate X.)

This is the most widespread of all the classes.

Sherds with curvilinear ornament, of a more or less fine texture and of various colours and degrees of thickness were found in nearly all the parts of the monument and its environs wherever excavations were made. The patterns were much more varied than at Hal Saflieni. A few remarkable ones are given in Plate XVII. Figs. 1, 2, 4, 5, 6, and 8.

A peculiar pattern, very simple, deserves a special notice. It is a large fragment of a flat-bottomed basin measuring 70 cm. in diameter. It was

found under the floor of the outlying dependency W. The clay is reddish and coarse and of an average thickness of 25 mm. The workmanship is rough. The decoration consists of deeply incised circles 5 cm. in diameter and 7 cm. distant from centre to centre.

Three fragments of another vase, possibly of the same shape and decorated with deeply incised circles, were found in the same place. The clay is finer and thinner (thickness 11 mm.) and of a dark grey colour (*vide* Plate XVII. Fig 7). The circles are roughly drawn and the incisions deep. It has been possible to calculate the diameters of several medium-sized bowls, among which we mention three: 21, 24, and 30 cm. respectively. The thicknesses were 7, 7, and 6 cm.[1]

The largest bowl in this class has a diameter of 58 cm. The ware is black and rather coarse. It has an average thickness of 18 mm.

The smallest bowl from Hagiar Kim belongs to this class. It has a diameter of only 6 cm.; its neck is 15 mm. high and its thickness is hardly 3 mm.

Class 21.—Incised meander-bands with contour painted in red. (*Pottery from Hal Saflieni*, Plate XI.)

These sherds, which are comparatively scarce, call for no special remark. The colouring of the contour in red is not associated with the painting of the ground in white, as in several cases at Hal Saflieni.

Class 22.—Incised scrolls with oblique strokes on one side, or herring-bone pattern. These sherds are very scarce and occur only in the outlying structure N, both outside and inside in the S.E. room.

Class 23.—Decoration of winding scrolls on a ground punctured with dots. Outlines and dots filled with white. (Pl. XV. Fig. 7.)

These sherds were met with in small quantities in nine different places, particularly outside the main building and in the outlying dependencies.

Class 24.—Vases having the form of hanging lamps. (*Pottery from Hal Saflieni*, Plates XIV. and XVI.)

Fine black ware with a slip. Ornament: panels decorated with incisions of various patterns.

From various sherds a small lamp was easily reconstructed. Its mouth measures 5 cm. in diameter, the upper diameter 8 cm., and the largest diameter 10 cm. Height 5 cm. Besides a fragment of a fine

[1] A vase decorated in the same style was found at Cagliari, in the Grotta S. Bartolommeo (*Bull. Pal.* xxiv. (1898), Tav. xvii. Fig. 8.)

smaller lamp, three other small fragments, apparently belonging to three different lamps, were found at M in the interior of the main building and in the outlying dependencies N and Y.

As stated at page 5 of my *Report on the Prehistoric Pottery from Hal Saflieni*, whilst sorting the sherds, I was much perplexed by the absence of any traces of lamps of any known form in a place where daylight could not possibly penetrate. When, later on, a considerable number of vases of a peculiar new shape were reconstructed, they were, for the reasons given in full in that report, considered as lamps (*Pottery from Hal Saflieni* Plate XVI).

The recent excavations at Hagiar Kim offered a unique opportunity of verifying the justice of that surmise. The pottery from Hagiar Kim, being identical with that of Hal Saflieni, proved that the two monuments belonged to the same epoch. The essential difference between them consisted in this, that one sanctuary was in the open air, whilst the other was subterranean. Thus, in the latter monument, lamps were a necessity, whilst in the former only a few may have been required for some religious ceremony. It was therefore only natural to foresee that if the vases at Hal Saflieni were really lamps, very few of them would be met with at Hagiar Kim. As a matter of fact, only a few fragments of four or five small lamps were found, notwithstanding that a most careful search was made with that particular object in view. I may add that no traces of vases of that peculiar shape were met with either at Mnaidra or at Cordin.

The paucity of such vases at Hagiar Kim and their total absence from the other two places, I consider as an indirect proof that at Hal Saflieni the vases of that peculiar shape were really lamps.

Other Vases not belonging to any of the foregoing Classes.

The shapes of the vases found at Hagiar Kim, as far as can be ascertained from the fragments, generally small, of bottoms, shoulders, necks, rims, and handles, are more or less similar to those found at Hal Saflieni, the principal types of which are figured in Plate XVII. of '*Pottery from Hal Saflieni*.' But a considerable number of fragments of vases of a peculiar shape were found in several places, particularly in the Court, outside of I, and in Y, of which no traces were met with at Hal Saflieni. These vases are, however, common at Mnaidra, where more

or less large fragments belonging to twenty-four different vases of that shape were discovered during the recent excavations (*infra*, 103, A. 1).

A sherd of a dark grey colour, perforated with sixteen holes of 3 mm. diameter, formed evidently part of a vessel serving as a sieve. It was found in the Court. (Pl. XV. Fig. 9.)

Handles.

A good collection of handles of various shapes found at Hal Saflieni exists in the Valletta Museum. They have not, so far, been classified and described. A good number of them have been met with at Hagiar Kim. A selection from the latter, containing some new types, has been made and figured in Pl. XVI. Fig. 1. The most remarkable one is represented as No. 2. It belonged to a large jar, a few fragments of which were found in the Court. For No. 5 cf. *supra*, 51 n. 2; *infra*, 105.

Stone Vases.

Besides the large basin mentioned in the Introduction, several more or less large fragments of stone vases were found in different places at Hagiar Kim, some of which are undeterminable. The following, however, were easily distinguishable and some measurements of them could be taken:

(*a*) Three fragments belonging to a bowl 22 cm. in diameter, 10 cm. in height of shoulder, and 25 mm. in thickness. The stone is soft (*globigerina* limestone).

(*b*) A small cup of hard stone, 14 cm. in diameter, 25 mm. in thickness. It has a rounded edge.

(*c*) A large shallow basin measuring 56 cm. in diameter, with a rim 9 cm. broad.

(*d*) A small flat-bottomed vase of soft stone (*globigerina* limestone) measuring 18 cm. in diameter, with shoulder projecting outwards of unknown height. Average thickness 10 mm.

(*e*) A small cup of soft stone 10 cm. in diameter and 5 cm. high. Its thickness varies from 6 to 2 mm.

(*f*) A dish with a diameter of 32 cm. at the bottom and 38 cm. at the top. Its outward inclined shoulder is 6·5 cm. high, and its average thickness 30 mm.

The Small Objects found at Hagiar Kim in 1910.

Flint and Chert Implements.—The flint implements, of which a large number were found during the recent excavations, are more or less similar in quality and colour, as also in their shape and size, to those found at Mnaidra and Corradino, and reported upon by Mr. T. E. Peet. The colour varies widely through all intermediate shades of grey, fawn, blue, and black. The most common are the scrapers having the shape of a segment of a circle with a lateral prominence corresponding to the bulb of percussion. Less common are the borers, terminating in a sharp point and showing by their patina that they were flaked out of flat cores. There were besides several broken knives, more or less long, having two parallel sharp edges.

A considerable number of these implements were found broken, evidently after having been used for some time. But a much larger number, upwards of two hundred, were simply flakes bearing no trace of having ever been used as implements. These flakes and the flat cores or nuclei are evident proof that the flint implements were not transported from distant places but were constructed *in situ.* Besides the flint implements already mentioned there were a large number of others in chert (*phtanite*).

A wedge-shaped axe was found having its edge curved outwards. It measures 9 cm. in length and 5 cm. in breadth (Pl. XVI. Fig. 2. No. 2).

The only flint object which may have served as a weapon is an arrowhead measuring 5 cm. in length and 2 cm. in breadth (Pl. XVIII. Fig. 11).

The occurrence of nodules of flint and chert in the *globigerina* limestone of the Maltese Islands was ascertained by the late Admiral Spratt, Sir John Murray, of the Challenger Expedition, and Mr. J. H. Cooke (*Geological Magazine*, April, 1893). This proves that the flint implements found in the megalithic monuments in the Maltese Islands were not necessarily imported.

Animal Bones.—The fact of a human skull (of a negroid) having been disinterred during the excavations carried out in 1839, suggested the idea of the possibility of other human bones being met with in 1910; but though careful search was made for that purpose among the large number of animal bones found in the latter excavation, no trace of human bones was met with.

The animal-bones found in several places all belonged to domestic animals, viz.: the horse, the ox, the pig, the sheep, and the goat.

Of the horse only two molar teeth were found; a considerable number of other bones, although mostly broken, were easily recognisable owing to the good state of preservation of their proximal and destal extremities. A few bovine bones and two teeth attached to a fragment of a mandible were found burnt. From the condition of the teeth and the relative size of the bovine bones it may be argued that there was a great variety in the sizes of the oxen.

The same thing may be said of the swine, the jaws and teeth of which were in most cases in a remarkably good state of preservation. Only very few pig bones were burnt.

The lambs and kids, judging from the size of the mandibles or of the upper jaws, were more abundant than the sheep or goats. Although the greater part of the bovine bones were broken there were many whole ones, particularly metacarpal and metatarsal bones, *astragali*, *calcanea*, and *phalanges*. The vertebrae, on the contrary, were not so well preserved. Some twenty bones of a bird of prey, probably a kite, were found.

Shells.—The following species were determined by Contino Dr. Alfredo Caruana Gatto, the well-known conchologist, to whom I avail myself of this opportunity to tender my best thanks:—

1. *Cypraea lurida*, Linn.
2. *Trochus fragaroides*, Lam.
3. *Pisania maculosa*, Lam.
4. *Purpura haemastoma*, Linn.
5. *Murex trunculus*, Linn.
6. *Spondylus gaederopus*, Linn.
7. *Venus verrucosa*, Linn.
8. A *columella* of *Triton*, sp.; and fragments of outer shell of do.
9. *Columbella rustica*, Linn.

The shells were, on the whole, rather scarce. In some cases only two or three specimens were met with.

A large portion of the sharp edge of a Triton may have served as a cutting instrument. It looks as if it had been sharpened intentionally (Pl. XIX. Fig. 1. No. 1).

It is remarkable that objects made of shells, such as beads or buttons, so common at the Hal Saflieni Hypogeum, have never been met with at Hagiar Kim.

Other Organic Remains.—In this category may be mentioned two fossils, viz.: a tooth of a shark: *carcharodon megalodon*, and a *schizaster* in a very bad state of preservation.

Pumice Stone.—Five fragments of pumice stone were found. They

are nearly of the same size—that of a nut. Two or three of them bear evident marks of having served as rubbers.

Pebbles.—A large number—some four hundred—of pebbles of various size, shape, and colour were found, mostly in the outer parts of the monument. They are all rounded and quite smooth. In some cases however, the roughness of one extremity seems to indicate that they were used as hammers, crushers, or grinders. Their form is either ellipsoidal or ovoid, flat or discoidal, but never quite spherical. In rare cases they are covered with a white patina on one or both sides.

Their colour is light or dark grey, cream, brown, or black. Their size varies from that of a walnut to that of a big orange (Pl. XIX. Fig. 2).

Such pebbles, though fairly abundant at Mnaidra and Cordin, are very scarce at Hal Saflieni. Two pebbles of the size of a small potato are pierced through, but it is not quite clear whether the holes are natural or artificial (Pl. XIX. Fig. 1. Nos. 3 and 4).

Objects of hard stone (Upper or Lower limestone).—Three small columns measuring respectively 38, 48, and 58 centimetres in height may have been used as supports of tables; but their slightly concave tops and the tapering of their surface make them look very much like the sandstone incense altars found in the rock shrine of Serabit at Sinai by Prof. W. M. Flinders Petrie.[1] Their diameters are as follows:—Upper 18, 21, and 19 cm.; Middle 23, 21, and 18 cm.; Lower 24, 26, and 28 cm.

There are also thirteen objects of hard stone, apparently broken portions of rings 15 to 25 cm. in diameter, and 4 to 6 cm. in thickness: one of them has a diagonal hole on its external edge, while a smaller fragment, with a similar hole, may also be part of a ring. (Pl. XVI. Fig. 2 Nos. 4, 6.) But it is not possible to state with certainty whether the rings were circular or elliptical, or even whether some of them were rings at all; the more so as six other objects, having nearly the same shape, have an angular recess which excludes the idea of those objects having formed part of regular rings. (Pl. XVI. Fig. 2, No. 5.) Two similar rings were found at Mnaidra and one at Corradino[2] (*supra*, 49; *infra*, 99).

[1] *Egypt and Israel*, by Professor W. M. Flinders Petrie, London, 1911. Fig. 21, facing p. 49.

[2] At Corradino a whole ring of hard stone was found. Its inner part is elliptical, measuring 5 cm. by 4 cm., and the outer part, elliptical on one side, has two angular prominences on the other. Similar stone rings are at present used by fishermen to set free their lines when entangled at the bottom. They are known by the local name 'purcillat.' Ten halves of similar rings were found at Valle della Vibrata, and one at Cagliari (*Bull. Pal.* xxxiii. (1907), p. 163, where they are explained as being hammer heads).

Twelve rough stones with shallow circular cavities from 3 to 10 cm. in diam. appear to have served as mortars ; in which case the pestles might have been the hard stones of a quasi-spherical form fitting more or less exactly the cavity and provided in some cases with a sort of handle. (Pl. XVI. Fig. 2, Nos. 7 and 8)

A wedge-shaped axe of hard stone is 10 cm. long and 4 cm. broad : its sharp edge is 5 cm. long. (Pl. XVI. Fig. 2, No. 3.)

Objects of soft stone (*Globigerina limestone*).—There were twenty hemispheres of white soft stone measuring 8 to 12 cm. in diameter. (Some of them were unearthed in former excavations.) They are exactly like those found at Hal Saflieni.

There are besides two conical stones with convex sides and a concave base, measuring 17 cms in diam. and 21 cms. in height (vide *2nd. Report on Hal Saflieni. Small objects and human skulls*, Malta 1912, p. 12 and Pl. XIII Fig. 8).

A conical stone, somewhat rounded at the top and having deep upright incisions on the lateral surface, measures 10 cm. in height and 7 cm. in diameter. (Pl. XVI. Fig. 2, No. 9.)

A conical stone, found in room C, very roughly worked and terminating in a sharp point, measures 30 cm. in height and 15 cm. in diameter.

A small cone with a sharp point might have served as a borer had it not been of soft stone. It is only 4 cm. in height and 3 cm. in diameter. (Pl. XVIII. Fig. 15.)

Of the so-called sling-stones which occur in such large numbers in the vicinity of Hal Saflieni only two were found at Hagiar Kim. They are ellipsoidal in form with pointed ends, and measure 5 cm. in length and 3 cm. in diameter. (Pl. XVIII. Figs. 9 and 10.) A few of the same size were found at Corradino.

An irregular fragment of soft stone, measuring approximately 18 × 13 cm., has a deep incision representing something like the horns of a bull. (Pl. XIX. Fig. 1, No. 2.)

A broken slab, 30 × 20 × 9 cm., is on two sides decorated with circular pits or punctures regularly distributed in the style characteristic of the ornamentation of the central parts of Hagiar Kim and Mnaidra.

From a large fragment of a soft stone hemispherical trough, roughly worked, the following measurements were taken. Internal diameter, 35 cm., external diameter 45 cm., height 32 cm., average thickness of

stone 6 cm. There were several other fragments of troughs, but no dimensions could be determined.

A mortar roughly worked has an internal diameter of 16 cm. and a depth of 19 cm. The stone is 3 to 4 cm. in thickness.

It is difficult to understand what may have been the use of two small stone objects of geometrical form. They consist of a rectangular base, 4 cm. long, 2 cm. broad, and as many high, surmounted in one case by a cylinder 2 cm. high, and in the other by a conical *frustum* of the same height. (Pl. XVIII. Figs. 3 and 4; Fig. 2 is similar, but broken at the top.)

Nor is it easy to make out whether a stone object looking like the bowl of a spoon with a very short handle attached was meant to represent a spoon or a hand. A lateral notch may have stood for the thumb. This object is 8 cm. long, and 5 cm. broad. (Pl. XVIII. Fig. 8.)

This is the proper place for mentioning an object of soft stone of strange form found by Prof. Zammit in January 1912. It is worked very roughly and looks like the body of a strange animal, the legs of which appear to have been broken.

The body is divided into three sections by two transverse ridges. It is 11 cm. long and its form is roughly cylindrical. Its surface is covered with longitudinal incisions, in the first section corresponding to the place of the head, and with transverse incisions in the middle section. In the third section longitudinal and transverse incisions cross each other. (Pl. XVIII. Fig. 12.)

Objects of Clay.—A spindle-whorl in clay of a discoidal form is 5 cm. in diameter and has a central hole 1 cm. in diameter. It is of the same shape and size as those found at Bahria.[1] (Pl. XVIII. Fig. 6.) Another one also of clay has a spheroidal form with a diameter of 3 cm. Its surface is decorated with curvilinear incisions. (Pl. XVIII. Fig. 5.) A third has a diameter of 45 mm. (Pl. XVIII. Fig. 7.)

Among the small objects of a more or less hard clay there is one deserving special mention. Five others of the same shape have been found at Mnaidra (*infra*, p. 103), one at Corradino (p. 51), and one at Hal Saflieni (2nd Report on Hal Saflieni, Pl. XIII. Fig. 5). It is bobbin-shaped, 5 cm. high, terminating in two concave circular bases, and 2 cm. in

[1] Vide *Contributions to the Study of the Prehistoric Period in Malta*, by T. E. Peet, in *Papers of the British School at Rome*, vol. v. Pl. XIV. Fig. 37.

diameter. It does not look as if it had served as a spindle-whorl. (Pl. XVIII. Fig. 1.)

Objects of bone.—The only object of bone is one having the form of a 'brassard.' It consists of a thin rectangle 60 mm. by 15 mm. having the longer sides slightly curved inwards and the shorter ones slightly convex. It has two large tapered holes near its extremities and its longer sides are decorated with short parallel incisions 1 mm. apart. (Pl. XVIII. Fig. 14.)

Objects of Jade.—Axe-shaped pendant. It is strange that of these pendants, so numerous at Hal Saflieni (upwards of 200), only one was found at Hagiar Kim. It is flat, thin, and polished, of a light grey colour and pierced through near the vertex. It measures 4 × 3 cm. (Pl. XVIII. Fig. 13.)

Carbonized Wood.—A small quantity of carbonized wood was found in Room F' under the floor.

Beads.—The only bead found during the recent excavations was among loose bones. It is spherical, 15 mm. in diameter, and pierced through. It is highly polished and its colour is a variegated red.

This solitary bead affords another proof of my contention that only a small proportion of the objects originally existing at Hagiar Kim has been recovered in the recent excavation.

IX.—MNAIDRA.

The ruins of Mnaidra, situated about half a mile to the S. of Hagiar Kim, were excavated in 1840, the year after Hagiar Kim had been examined. Unfortunately no contemporary report is available; and the building has only been mentioned cursorily in connexion with Hagiar Kim. Mayr (*V.D.* and *P.M.* Plan II.) was the first to supply a satisfactory plan, made from his own survey.[1] The plan here published (Pl. XX.) is the result of a new survey by the Maltese Department of Public Works, based, however, on Mayr's plan. A section across the whole building has been added, in which the soil is shown in black, and stones seen in section are cross-hatched.

As at Hagiar Kim, the excavations had not been by any means complete, and a good deal of supplementary work on a small scale remained to be done.

[1] The only previous plan is the rough one given by Fergusson, *Rude Stone Monuments*, p. 657.

In the N.E. portion of the enclosure, on the right immediately after entering it, are the remains of a subsidiary building, which Mayr does not mention (656 *sqq* = 17 *sqq.*) nor indicate on his plan.

This building was by no means on the scale of the main sanctuaries and it is possible that it was devoted to domestic uses, as large quantities of pottery were found in it. The plan, owing to the partial destruction of the walls, is not easy to understand. The entrance seems to have been from the S., through a narrow doorway *β*, 0·60 m. in width; the stones on each side of it were originally decorated with pit-markings, but these can now be distinguished only on the lowest part of the surface.

β led into a room 3, the floor of which is formed of torba 0·03 m. thick (under this is a layer of stones and earth 0·39 m. thick): immediately inside the doorway is a stone step 0·55 m. across; while close by is a fallen slab 1·60 m. long by 0·72 m. wide by 0·13 m. thick, the original position of which is uncertain. The room had apparently two apses, like the large areas of the main building, but the greater part of its walls has disappeared: on the site of the eastern apse the rock was found to descend to 0·80 m. below the modern ground level. To the W. of *β* is a niche *a* open towards the S., 1 m. wide and 0·70 m. deep, with a single slab forming its floor.

To the N. of *β* is an apsidal space 2, enclosed by a wall formed of small stones, and divided from 3 by a line of three slabs 0·75 m. high, with a pillar-stone at each end, measuring respectively 1·40 × 0·75 and 1·55 × 0·65 m. and each 0·25 m. thick: the latter, which was on the W., was found fallen and set up again by us.

These pillar-stones are decorated with pit-markings which run in curious lines on the lower part of the inner faces: at the lower outer corner of each of them is a hole passing through the angle.

To the E. of 2 is a small space 2′ with torba flooring 0·65 above the floor of 3.

To the N.E. of 2 is a large space 1 enclosed by irregular walls, the exact line of which is not always certain.

Here very large quantities of pottery were found; but most of the pieces were in a very rotten condition. They lay mostly in a hard layer of burnt earth just above the rock, which was here from 0·70 m. to 1 m. below the modern level.

A sling-stone 0·065 m. long (*infra*, p. 100, No. 20) and two objects of

terracotta of some interest were also found—the lower part of the leg of a statuette, which was obviously steatopygic, 0·04 m. in length, the foot alone being 0·015 m. long (*infra*, p. 103, No. 18); and a bobbin (?) with a hole in it, having the typical form of the stone central supports of the large table slabs which are found in the niches of the main building, and very possibly an actual imitation of one of them (cf. *infra*, p. 103, No. 16). Some boars' tusks were also discovered.

The walls of the room are of small slabs, which rise to a height of 0·70 to 0·90 m. above the rock; and one is forcibly reminded of the structure of the two smaller (western and eastern) buildings on the hill of Corradino.

The outline of the room is irregular: there was probably an earth floor above the rock, but we were unable to trace it. To the N.E. and N.W. of 1, there were probably other rooms or spaces, but it was impossible to make out their plan. They did not extend beyond the exterior of A in any case, and trial trenches all round the exterior of the building on the N. and W. revealed nothing but the rock from 0·40 m. to 1 m. below the modern level.

We may now turn to the upper (north-eastern) of the two portions into which the main building falls. The entrance to A was a double one, through a window-like opening in the slab *oo*, and by a doorway between the slabs *ss*. The stones at these entrances had been much damaged and broken up, but it was found possible to piece several of them together, and these were re-erected as far as possible: (*pp*, *p′p′*, *qq*). (Pl. XXI. Figs. 1, 2, Pl. XXII. Fig. 1.)

To the S.W. of *ss* too the wall was repaired: the orthostatic slabs which formed its base were missing, and therefore the horizontal blocks of the upper portion of the wall, which were successfully recovered, were laid upon a new wall of small stones, constructed in such a manner that no confusion with the antique is possible.

Investigations immediately in front of these entrances made it clear that here, as elsewhere, there had been flat horizontal slabs laid in front of the orthostatic blocks of the façade. These slabs were no less than 0·70 m. in thickness.

A trial pit was made in front of them, at 4, extending under them for a little way: it was found that they were laid on loose stones, etc., for a depth of 0·30 m., and below these was a layer of fine dark brown earth,

containing a good deal of pottery: this must of course have belonged to a period preceding the construction of the building A-D, but did not appear to belong to an earlier date than the rest. Here was also found a spiky object of terracotta (*infra*, p. 103, No. 15). The rock was reached at a depth of 0·40 m. more. The slabs are now only 0·60 m. wide, but they had been broken off and cut up for building material (many stone chips were observed near them); and they originally ran as far as the line 555′5′, being supported by a low rough wall, so as to line up with the blocks 5′5′, and complete the frontal semicircle of the whole building.

Trial pits were also made in the apses of A and B. In both of the apses of A the floor, which was of torba, had been much disturbed by previous digging, though its level was clearly seen. It was not therefore a safe inference that the pottery found below its level belonged to a period previous to its laying. After about 0·30 m. from the surface a mass of small stones was reached, which increased in size as the excavation went downwards, with a little soil between them, and a small amount of pottery. The rock was reached about 1·50 m. from the surface in the N.E. apse.

In the N.E. apse of B the rock was only 0·40 m. down, but it fell rapidly towards the S.W., and was said to be about 1·80 m. below the surface in the S.W. apse, where a previous trial excavation had been made. On the plan the rock level is indicated in feet and inches.

It seems clear that the site for the upper building, which I agree with Mayr in assigning to a later date than the lower, was obtained by heaping up against the N.E. external wall of the latter a mass of small stones so as to form a level platform above the wall, which sloped from the N. to the S.E. and N.W.

The niche C was originally roofed by one large horizontal slab (the distinction drawn by Mayr (661, 23) between the table and the horizontal slab is incorrect), the front part of which was broken across, while the slab itself was fractured longitudinally. This has now been mended, and the result is shown in Pl. XXIII. Fig. 1 (the pillar in the centre of the niche is a modern addition).

The pedestal *m* of the table in the niche D was excavated to its full height, which was found to be 1·32 m. It widens out at the base more abruptly than at the top. (See Pl. XIV. Fig. 4.) In the earth which covered the base there was some pottery, including one of the five

bobbin-shaped objects described below (p. 103, No. 16). The threshold stone inside *kk* is 0·26 m. thick.

There is an abrupt drop in level at the point of junction of the façades of the two buildings ; traces of a rough wall on this line were recognized, but whether there were steps, or how the descent was managed, is not very clear.

In front of the lower building was a large area paved with rough stones (Pl. XXIII. Fig. 2), as at the southern building at Corradino. It was buried under only about 0·10 m. of soil. It extended eastward for a distance of about 7 m., but was not limited by any edging, ending off simply where the level of the rock began to rise.

Among the soil in this area, which was very likely brought from the interior of the building by previous excavators, some pottery was found, and also a small terracotta head (p. 102, No. 14), and the leg of a stone table of the usual type, but slenderer than usual and enlarged only at the top (*infra*, p. 98, No. 1).

A piece of obsidian was also found here. On the S.W. side of the entrance the frontal slabs of the façade were carefully replaced to avoid the ruination of the whole.

In E a torba floor was found, except in the N.E. half, where it had almost disappeared, previous digging having been done, but without result, as the rock came very close to the surface.

Further S. the rock descended, and a torba floor 0·05 m. thick was found: the stones under it occupied another 0·17 to 0·19 m., and there was a varying depth of red earth below this, some 0·22 m. on the average, which produced a good deal of pottery, black with deep incisions. Some of the upper courses of horizontal masonry were replaced, and the cover-slab of the niche *g*1 *g*1 was also restored to its horizontal position. (Pl. XXIV. Fig. 1.)

In the small room F there was an exceptionally good floor of torba lying 0·05 m. below the level both of the step at the entrance and of the step into G : in the latter are two of the usual holes, united by a narrow channel passing under the surface of the slab, which projects about 0·50 m. into G beyond the stones m_1 m_1.

The torba varies in thickness from 0·125 to 0·23 m., and under it is a layer of stones and dark earth 0·32 to 0·41 m. thick containing a little pottery ; below this we found either virgin soil or rock.

A small terracotta head (*infra*, p. 102, No. 13) was found in the soil above the floor. The bottom slab of the lower of the two tables at *p*1 was found to rest upon two slabs 0·17 m. thick, under which was a layer of earth 0·16 m. thick, lying upon the torba floor; so that it is probable that they did not form part of the original construction.

G was excavated to a greater depth than had been done hitherto, and the tabernacle-like shrine (Mayr, 658, 19) was found to rest upon a well-

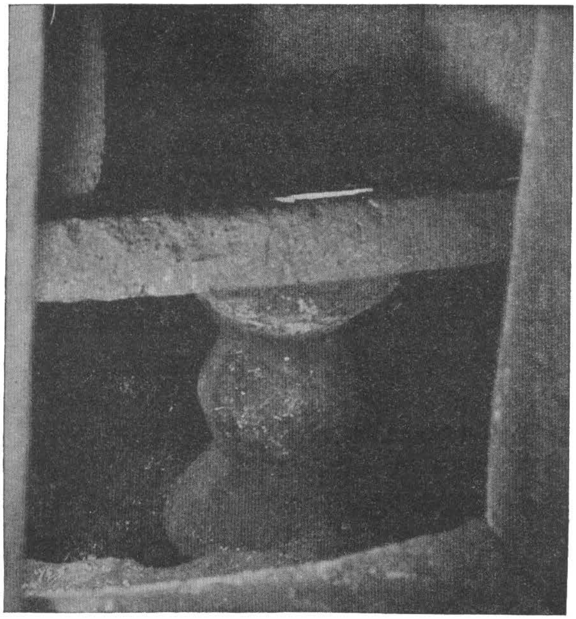


FIG. 15.—MNAIDRA, TABERNACLE-LIKE SHRINE IN G.

turned pedestal, not of the usual type, but with a bulge in the centre: it was 0·54 m. high, and varied from 0·17 to 0·28 m. (Fig. 15) in diameter, and stood upon a stone 0·15 m. thick.[1] In the earth which covered it a little pottery was found, and a conical plug, 0·115 m. in diameter and 0·065 m. high, with a slight depression in the flat base (*infra*, p. 99, No. 10).

Turning to the western portion of the building, it was found that H, J, K all had torba floors about 0·06 m. in thickness, even in the niches, with the exception of the northern niche of H, which had a slab as floor:

[1] For a model of such a pedestal cf. *Hal Saflieni Second Report*, Pl. XIII. Fig. 3.

in the wall of this niche a table leg 0·55 m. high and 0·28 m. in diameter had been used as building material. Below the floor the rock or the natural soil was quickly reached, and in the various trial holes made no objects were found, except in J^N. Here a hole was made in the floor against the W. wall, which, as Mayr noticed, is built of large rough stones and seems to belong to the most archaic part of the building; similar walling is also to be seen in the space to the N. of J^N and behind the niches of H. The orthostatic slabs of the lower part of the wall rest upon base blocks projecting 0·40 m. or more, and rising from 0·05 to 0·30 m. above the floor level.

The floor was found to be 0·07 m. thick, and under it were stones and earth 0·16 m. thick, with pottery, and the leg of a steatopygic statuette. Then came a pocket of fine grey earth, hard, with much trace of burning, containing some charcoal (of which a specimen was taken) and pottery and bones, also a circular terracotta weight and a caltrop-like object of the same material. The pocket measured 1 m. by 0·80 m. and was about 0·17 m. deep. Below it was dark earth, again with traces of burning; and here were found some objects of terracotta of very great interest (described *infra*, p. 100, Nos. 1–11).

This stratum was quite a thin one, and below it we found the bright red hard virgin soil, resting upon the rock.

Further S. the stratification was varied; under the torba were stones and sandy earth for a depth of 0·10 m., and then fine dark earth with stones in it for a depth of 0·20, and then the rock: in other places again the rock rises irregularly, and lies almost immediately under the torba. The whole room practically was cleared, in the hope that other objects might be discovered, but only a little pottery was found; and the floor was afterwards filled up again to the level of the torba, which was not cut through where it rested directly on the rock. The threshold stone of J^N was found to be 0·48 m. wide and was 0·09 above the torba floor.

In the chamber to the N. (6 on plan) which was probably accessible only from the outside by an entrance b_2 b_2 with a headway of about 1·90 m. (Mayr, 660, 21) (and even this is much blocked by fallen stones) a little pottery was found among the soil, and especially under a large fallen slab x lying in the centre of the chamber, which probably once formed part of its roof. It is 2·22 long, 1·24 wide, and 0·75 m. thick: 0·65 below it the natural soil was reached.

Here one may clearly notice the difference in technique between the outer main wall of the building and the (later) wall of the N. apse of E: there is no doubt in my mind that Mayr's contention as to the dating (663, 26) is correct. But he is wrong in saying that the left apse of the original posterior area was *removed* in order to make room for H: for the primitive roughly built walling may be seen at the back of the niches formed by v_1 v_1 and w_1 w_1.

At the entrance from E into H, wedged in between the stones r_1 and s_1 was a fragment of a large circular stone basin (*infra*, p. 99, No. 2). It is uncertain whether it was placed there by previous excavators or in ancient times. I fear that from their record in other cases one may imagine that the former alternative is not unlikely.

In the threshold block between the stones s_1 s_1 are two holes 0·10 m. in diameter and 0·20 m. apart, communicating by a narrow opening. In the northernmost of these had been placed, probably in ancient times, a fine hammer-head of stone (*infra*, p. 99, No. 13). We may note that the slabs t_1 g_2 h_2 are purposely cut so as to be wider at the top than at the bottom.

The entrance itself, which is remarkable for its fine pit-markings,[1] was repaired and the lintel consolidated (Pl. XXIV. Fig. 2); and the niches in H were also repaired, as far as possible (Pl. XXII. Fig. 2). I think that the northern niche had only one horizontal slab, not two, as Mayr supposes (659, 20). The pedestal of which he speaks was not a support for a separate slab, but the top of it was in one piece with it, like that in B at Hagiar Kim.

It was impossible to replace the lintel of the entrance from E to J, but it was removed to E and put together there. It has a hole for the pivot of a door, corresponding to that in the threshold behind the blocks e_2 e_2.

The semi-circular enclosure (7 on plan) alluded to by Mayr (664, 27) as existing on the S. side of the southern building was cleared: the slabs, averaging 0.75 m. high, stood upon rough base blocks 0·25 m. high, and those on soil 0·15 m. high, below which is the rock—the depth of the latter, however, varies. Behind the slabs is rough walling

[1] With regard to the pit-markings, Professor J. L. Myres, in commenting on the report when read at the Sheffield meeting of the British Association, rightly remarked that the marks at Hagiar Kim had been produced simply by pounding with a hammer; while at Mnaidra they had been cut out, and then worked larger by rubbing with a stick and some sand.

of smaller stones, which serves as a support to them; and this is alone preserved on the S.E. side, where the wall runs straight. Here was found a stone object of uncertain purpose (*infra*, p. 99, No. 8). Portions of a threshold slab of later (perhaps comparatively modern) date were also found here. To the W. of the enclosure is another, much smaller, with a torba floor (8 on plan).

The continuation of the arc of the front wall (Mayr, *ib.*; 9 on plan) was followed, and cleared to some extent. It was of massive construction like the façade itself. It looks as though there had been an entrance between y^2 and the stone on the S. of it to the subsidiary part of the building, of which 7 and 8 alone survive. There seems to be little doubt that it was a later addition, and the blocks were not very rough.

Trial pits were sunk at various points all round the back of both buildings, either the virgin soil or the rock being reached at not more than 0·60 m., and it was equally clear that nothing was to be hoped for in the large level area to the S.E. of the paved court in front of the lower building, nor it seems, on the terrace above it, and below the entrance to the upper building; a curved wall here seems to be accidental, and not part of the building, as inside it are loose stones obviously heaped up from the earlier excavations.

On this same terrace stand the remains alluded to by Mayr (664, 27 *fin.*) as existing near the E. side of the northern building. I could make nothing further of them.

X.—MNAIDRA.

Objects of Stone.

(1) The most striking object is one of the familiar megalithic pillars, but of rather unusual form. It is 75 cm. in length and of almost uniform diameter (20 cm.) except at the top, where it broadens out very suddenly indeed to 30 cm. At this point it is much broken. Above the top is a circular pit of 12 cm. diameter in the centre of the pillar. The bottom of the pillar is slightly concave as usual.[1]

[1] I saw another such pillar lying above r^1 on the right of the entrance to *H* in 1909: it was 0·50 m. long, with a diameter of 0·23 at one end (where it was slightly concave) and 0·28 at the other.—T. A.

(2) A fragment of a large circular tank whose diameter must have been over a metre. The working is fairly good inside and out and the rim is rolled over on the outside. A piece of the rolled rim of another such tank was found.

(3) A fine elliptical piece of hard limestone for grinding on. The upper face is flat and the lower is convex. The stone is much deeper than such mills usually are. Length 32 cm.

(4) A circular mortar, diameter 21 cm., roughly worked inside and out.

(5) A flat cylindrical stone, diameter 13 cm., depth 7 cm., with a marked depression in the centre of the upper face. This may have been a mortar, but Professor Tagliaferro suggests that it may have served as the lower socket on which a wooden door swung. Such a door would not swing on hinges in the modern fashion, but would be fixed top and bottom by pegs turning in small circular sockets.

(6) Several shapeless stones with holes bored through them.

(7) Fragments of at least three rings of hard limestone about 20 cm. in diameter. [Pl. XXV. Fig. 1, No. 5.] (Cf. *supra*, 49, 87.)

(8) A large broken fragment of stone showing one side convex with a flattish circular boss in its centre. From the fragment it is impossible to guess either the original form or the purpose it served.

(9) An elliptical object with pointed ends like an enlarged slingstone of the Hal Saflieni type (length 16 cm.). There are broken surfaces on both sides and the stone is probably quite natural.

(10) Two stone plugs of Hal Saflieni type, conical with slightly convex sides and concave base. [Pl. XXV. Fig. 1, Nos. 1 and 2.] Diameter 8 and 11 cm. respectively.

(11) Several mortars of the type of (4) but smaller and rougher.

(12) Mill-stones of type (3), smaller and flatter. [Pl. XXV. Fig. 1, No. 6.] Pebbles of various sizes for grinding with on these and in the mortars.

(13) A fine cylindrical mallet head with slightly rounded edges (length 145 mm., diameter 84 mm.). It is pierced transversely through the centre and round the middle runs a shallow furrow for the cords used in the hafting. The material is hard limestone. [Pl. XXV. Fig. 1, No. 3.]

(14) Fragment of a small rectangular (or square) slab of hard lime-

stone with slightly convex sides (breadth 80 mm. depth 18 mm.). Round the upper face runs a low ridge. Each side is adorned with an incised rectangle, the lines forming which are parallel to and close to the edges of the side. [Pl. XXVI. Fig. 1, No. 5.]

(15) A damaged stone bowl [Pl. XXV. Fig. 1, No. 4] of great interest as showing the transition from the mere mortar, which is a simple stone hollowed out, to the stone vase with thin walls (cf. 16). Diameter 140 mm. Thickness of stone at the bottom 40 mm.

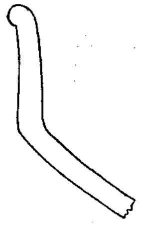


FIG. 16. (½)

(16) Fragments of several stone bowls. [Pl. XXVI. Fig. 1, No. 4.] In the best example (for section see Fig. 16) the walls are only 10 mm. thick.

(17) A flat stone disk, 59 mm. in diameter [Pl. XXVI. Fig. 1, No. 6], with a hole pierced through the centre (? a spindle whorl).

(18) A piece of a stalactite 40 mm. long and two other pieces of stone, both probably the ends of stalactites. [Pl. XXVI. Fig. 1, No. 14.]

(19) Three pieces of very light pumice-stone.

(20) A 'slingstone' of the Hal Saflieni type.

The flints (for classification see Corradino South).

A. Scrapers worked on one curved edge only. These are common. The segmental type is absent.

B. Scrapers worked almost all round.

Six long rectangular, eight triangular [Pl. XXVI. Fig. 1, No. 10], and two rounded [Pl. XXVI. Fig. 1, Nos. 11 and 13], of which one is a magnificent thin example, quite circular.

C. The flakes are mainly shapeless. A few might be described as triangular. Pl. XXVI. Fig. 1, No. 7 is trapezoidal and quite unworked.

A lump of obsidian was found near the main entrance to E.

Objects of Terracotta (Pl. XXVII).

The objects numbered 1–12 were found under a torba floor in the room J^N. All are of very lightly fired yellowish clay.

(1) Female figure, height 52 mm. The head is a mere pinch of clay

and the legs and arms little more. The abdomen is immensely swollen and the protruding breasts rest upon it. The back is incised with lines to represent the ribs and vertebræ. The feeble rendering of the legs leaves it hard to say whether the figure was standing or seated. Dr. Zammit is surely right in holding that the figure represents some pathological condition rather than one of pregnancy. [Pl. XXVII. Fig. 14 and Fig. 17 below.][1]

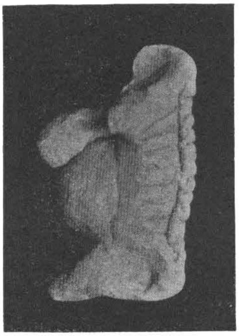


FIG 17.

(2) Five twists of clay, possibly meant for deformed legs. [Pl. XXVII. Fig. 20.]

(3) A ball of clay, 7 cm. in diameter. [Pl. XXVII. Fig. 2.]

(4) A spherical representation of an animal or bird covered with scales (Pl. XXVII. Fig. 1). The head is clearly shown with the mouth or beak open. Down the back runs a ridge in relief, and behind the neck there branch off two very small wing-like objects not detached from the surface. The length over all is 72 mm.

(5) An animal head (or whole animal ?) with mouth wide open. The eyes are clearly shown as flat round discs. From under them projected two arms (??), one of which has been broken off. The object stands on a flat base. Its height is 68 mm. [Pl. XXVII. Fig. 15, and p. 102, Fig. 18.]

(6) A somewhat similar figure with less detail. Flat base. Height 65 mm. [Pl. XXVII. Fig. 13, and p. 102, Fig. 19.]

(7) Another, still more shapeless. No flat base. Height 65 mm. [Pl. XXVII. Fig. 21, and p. 102, Fig. 20.]

(8) A four-lobed object. [Pl. XXVII. Fig. 4.] It recalls the many-lobed object from Hal Saflieni (see *Second Report* Pl. XIII. Fig. 1).

(9) A smaller ball of clay. [Pl. XXVII. Fig. 11.]

(10) The leg of a small steatopygous figurine. [Pl. XXVII. Fig. 8, front view.]

(11) A spiky object. [Pl. XXVII. Fig. 5.]

(12) A bean-shaped object. [Pl. XXVII. Fig. 17.]

[1] I think 5 and 6 may also be rough representations of the human figure.—T. A.

(13, The head of a small figurine. The hair is represented in the usual fashion (Cf. 13).

(14) Head and neck of a figure. [Pl. XXVII. Fig. 16.] The hair

FIG. 18.

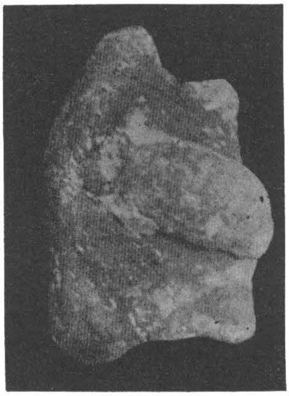


FIG. 19.

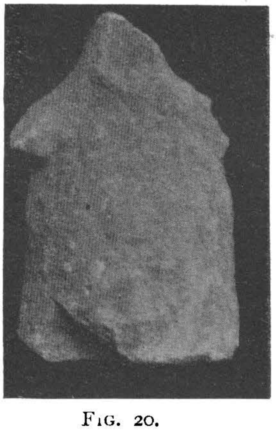


FIG. 20.

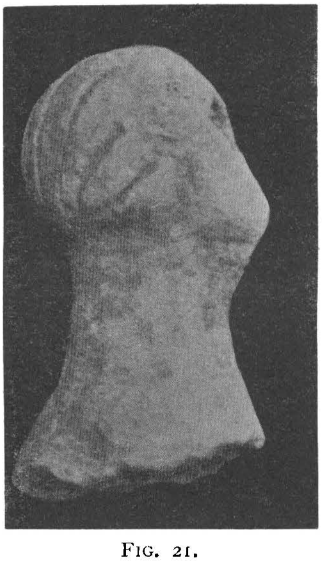


FIG. 21.

is shown as a raised mass incised with parallel lines (Fig. 21 above). The eyes are remarkably well given. The cheeks, now damaged, were puffed out to an extraordinary degree. Height 82 mm.

(15) A spiky object similar to No. 11. [Pl. XXVII. Fig. 12.]

(16) Five bobbin-shaped objects, some of which are perhaps models of the usual table supports seen in the megalithic buildings (*supra*, 51, 89). One is hollow, two are transversely pierced through the centre, and two have slightly concave ends. [Pl. XXVII. Figs. 3, 7, and 18.]

(17) Part of a seated steatopygous figurine of the Hagiar Kim type with flattened back. [Pl. XXVII. Fig. 9.]

(18) Leg of a small figure. [Pl. XXVII. Fig. 6.]

Miscellaneous objects.

(1) A piece of shell [Pl. XXVI. Fig. 1, No. 8.] with four deep parallel incisions across it.

(2) A fossil shark's-tooth.

The Pottery.

A. Rough faced wares, ornamented before firing.

(1) Plain wares.

The most notable are the numerous bowls of the type shown in Pl. XXV. Fig. 2, No. 2. The clay is rough and has a greyish-yellow surface. There is a low lip, and the rim is notched all round and slightly raised at a point diametrically opposite to the lip.

(2) Scale ware.

There are fragments of several very large vases with rough overlapping scales in high relief, evidently made while the clay was extremely wet. All the types of scale ware are represented, including the pseudo-scale type in which the leaf and its veins, instead of being given in relief, are merely incised (cf. Corradino South). One fragment shews horizontal scales. Pl. XXVI. Fig. 1, No. 1 is a fine example of the veined leaf type.

(3) Pitted ware.

There is one example of the very rough rugose pitted ware. In the usual types the pits are round, elliptical, or even linear with or without white filling.

(4) Studded ware.

The studded vases are usually large and thick, and the studs circular.

In one fine piece the studs are long, elliptical, cut on the surface of the vase, and not affixed.

The vase of which a piece appears in Pl. XXVI. Fig. 2, No. 5 combines round studs with crescent-shaped ridges of clay in low relief.

(5) Line ware.

The vases vary in size and texture. The lines are usually vertical and parallel, but in one fragment they are arranged in a dog-tooth pattern.

The restored portion of a vase [Pl. XXV. Fig. 2, No. 1.] is ornamented with deep broad lines which might also be classed as fluting.

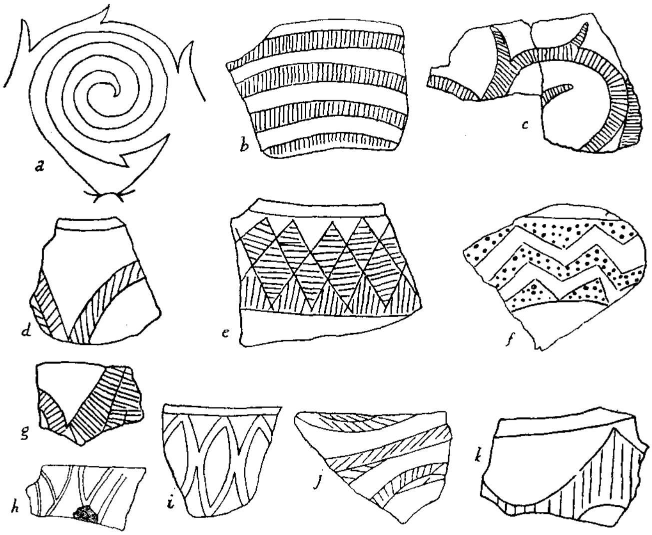


FIG. 22. (⅓)

B. Maltese slip wares.

I. Vases incised after firing.

The designs vary. Among the rectilinear the cross line or lattice pattern (G 18) is the most usual. The curved patterns are best seen in Fig. 22. There is considerable diversity, and the naturalistic scroll designs, *a* and *c*, are cut with great accuracy and firmness of hand. The closely hatched or cross-hatched curvilinear figures so common at Corradino South are not usual at Mnaidra, where the hatching is usually looser. There is a fine piece of reddish ware with dot and line ornament.

The shapes of the finer vases are usually bowls with a vertical wall (Corradino South, Shapes A and B). The tongue handle with pointed end is common on small bowls: it has occasionally a ridge in relief on the back [Pl. XXVI. Fig. 1, No. 3], and in one case a loop handle low down. [Pl. XXVI. Fig. 2, No. 7.]

II. Vases incised before firing.

(1) Dot and line ware is not uncommon. The best piece is that drawn in Fig. 22 *f*. Curvilinear patterns are frequent and white filling is usual.

(2) Pl. XXVI. Figs. 3 and 6 are from a large vase, of which several fragments were found.

Pl. XXVI. Fig. 2, No. 1, is a fragment deeply incised and white filled. It is not Bahria cut-out nor Corradino incrusted ware, but resembles Santa Verna Type B. II. 2. *b*. Pl. XXVI. Fig. 2, No. 2, is an unusual type of ornament. Note also the remarkable star in relief (or animal's skin?) in Pl. XXVI. Fig. 1, No. 15.[1]

C. Other wares.

Four undoubted pieces of Bahria red ware were found, easily distinguished by their soft yellow clay and flaky red slip. Two are pieces of handles of Bahria type.

The Handles.

The handles call for no special remark, the tongue form having been already discussed. The tunnel-type is common on large vases. Among the true loop handles the type which is continued upwards to meet the vase wall in a point occurs several times.

XI.—EXCAVATION OF THE PREHISTORIC SITE OF TORRI TA SANTA VERNA, GOZO.

The discovery of this prehistoric site is due to Mr. Nicola Said of the Public Works Department, Gozo, who traced its position from an old private manuscript of which he was able to take a copy. The temple of Santa Verna is indeed mentioned by the late Father Magri (*Ruins of a*

[1] A similar piece was found at Corradino South Building and another at Hagiar Kim (*supra*, 51, n. 2).

Megalithic Temple at Xeuchia, p. 3), but it seems doubtful whether he had found this particular building, and in any case, Mr. Said's discovery was made independently.[1] This lies in a field some two hundred yards to the W. of the outskirts of Casal Xaghra or Caccia, and about as far to the N. of the precipitous side of the somewhat barren hill on which the above named village is situated. It is also near the Church of S. Antonio.

Before the excavation, the site consisted of a small hillock in the field, bounded on the N. and on the E. by two large stone heaps, from the easternmost of which emerged three megalithic slabs (GGG on the plan, Pl. XXVIII.) set upright edge to edge in a concave formation.

Trenching was begun on the 2nd of June 1911 by Dr. T. Ashby, but after a few days he unfortunately fell ill and the work was continued by myself. The work was completed on the 14th June.

The first trench was taken in a westerly direction from the N. of the three megaliths, and the first day yielded nothing but some fragments of pottery. A pounded limestone floor (torba) was eventually struck quite near the field surface, and room A was cleared as far as the stone heap to the N. would permit. This discovery led to the finding of a low wall of rough boulders to the S. and of a second torba floor, B. Work being continued in a southerly direction, a third torba floor, C, was cleared, roughly pentagonal in shape, at a level of about 7 inches (18 cm.) above B. This is some distance from B, and is rather in the nature of an outlier; the intervening space is occupied by the remains of a wall probably belonging to an earlier megalithic period.

Work was now impeded by the two stone heaps and a day was taken in removing them. The northern boundary of A was then revealed, namely, a megalithic wall which had been filled up from its outlying foundations with a sloping bank of loose stones to the level of the torba. Along the northern boundary of A the megalithic wall projects and apparently formed the base of the wall contemporaneous with the highest floor. A was thus entirely cleared and work proceeded in a westerly direction leading to the clearance of D, where no torba yet appeared and which was full of

[1] It is undoubtedly identical with the building described by Houel, *op. cit.* iv. 78, with a view on Pl. CCXLIX. and a plan on Pl. CCLI. of which the MS. seen by Mr. Said contained a copy. Its position is clearly shown in his map (Pl. CCXLVII.). Mayr (693, 70) transcribes Houel's description, but was unable to find the remains: I do not think that Houel's 150 toises must be taken literally—the real distance is about 1000 yards, or nearly 500 toises. The building has been much damaged since Houel's time.—T.A.

blocks of stone standing in the semblance of walls without much system or regularity. A wall was also discovered running in a N. to S. direction on the W. of B, and an amorphous space was uncovered in E containing soil and boulders.

Meanwhile the megalithic wall was cleared of its covering of loose stones at the N.E. and N.W. corners, and it was shown to be founded on bed-rock, and supported by boulders which may possibly have fallen from their original position. The floors in the N. part of the building stand 5 feet 6 inches (1·67 m.) above the field surface, but towards the S. the latter rises to the same level as that of the building, meeting it at Y and on the S. side of GG.

Near the western edge of the plateau formed by the construction small torba areas were cleared, lying to the W. of D and evidently belonging to it. Work on the outskirts led to the discovery of H, a small torba and dirt floor in the concavity of the three great stones and half way up them, which eventually turned out to be modern, a tobacco pipe and pieces of modern crockery being found under it. To the E. of this a rough cobble pavement, F, was found to run out from below the eastern side of A, and to continue round the great stones to S. and W. of the platform. South of B it extends for 46 feet (14 m.). It does not continue below the northern wall at J. To the S. it runs to the level of the platform.

The original megalithic wall on the N. appears to have run E. and W. along the edges of D and A. North of A its foundations are still covered with loose stones as shown on the plan. From the N.E. corner of A it probably ran due S. to the megaliths G, G, G. Thence in the earliest times it probably curved round to W. of B.

A appears to have been of roughly rectangular shape (although the torba does not extend all across the western portion), measuring 32 feet long by 18 wide (9·76 × 5·5 m.); it was bounded on the N. by the megalithic wall and on the S. by a low wall which divides it from B. An examination of its edge showed that a lower floor existed beneath the upper one, the two being separated by 2 inches (5 cm.) of compact earth. Both are of yellow limestone. In the N.E. corner, bounded on three sides by rocks, was a hearth (*a*), 3 feet 3 inches (99 cm.) (N.E. to S.W.) by 3 feet 9 inches (1.14 m.) (N.W. to S.E.), with ash lying on it to a mean depth of 5 inches (13 cm.). In two other places there are signs of burning.

Room B is roughly elliptical in shape, measuring 15 feet by 12 feet (4·50 × 3·60 m.). Its upper floor is of white torba, but in this were set little flat fragments of limestone one inch across and under, forming a kind of parquet or mosaic. At present this stone work extends in the nature of a circular path (*d–d*) nearly round the room, the centre having probably been worn away or broken. The thickness of the upper torba is 1½ inch (4 cm.), and below it, for a depth of from 2 to 3 inches (5–8 cm.) there is hard compact soil as in A. Under this there runs a second torba, yellow and red, 1½ inch (4 cm.) in depth, followed by compact soil for 2 inches (5 cm.). This is set upon loose stones of fairly uniform size evidently selected for the purpose. In each case the soil appears to be the lower part of the flooring of which the torba is the upper part. Near the eastern edge of the floor is a hearth (*b*) measuring 32 inches (80 cm.) (W.N.W. to E.S.E.) by 22 inches (55 cm.). At C, to the N.W. is another fireplace of irregular shape measuring 26 inches (65 cm.) (N. to S). by 18 inches (45 cm.) (E. to W.). It contained calcined bits of limestone and potsherds. There is a low wall between A and B which rests apparently upon the lower torba.

The torba of C is yellow, 1½ inch (4 cm.) thick, laid upon a thin dirt layer which is followed by loose stones to a depth of 1 foot (30 cm.). In the outliers W. of D the torba is also at a high level, but in neither case is it followed by a second floor. In the former the torba is 1½ inch (4 cm.) thick, dirt 1½ inch (4 cm.), then follow loose stones. In the latter the torba is 5 inches (13 cm.) thick and is followed by a thin band of soil over the stones.

In D the traces of burning were numerous, and these appeared to run into a walled niche forming three sides of a square, the opening being to the E. The ash was followed up to the stones, but as it appeared to run under them and they showed no signs of fire, they were removed. Nearly the whole area of D appears to have been one huge fire place (*e–e*). The depth of ash ran to as much as a foot (30 cm.). Under the stones the traces of two torba floors were discovered, the upper being only a skin separated by two inches (5 cm.) of earth from the second. The ash, however, ran right through to the loose stones, so it may be supposed that the hearth belonged to the latest period and burnt its way through. It is probable, however, as will be argued later, that there was no great difference in age between the two upper floors. D was extremely rich in pottery, implements and

ornaments, and its hearth, like nearly all of those discovered, contained sherds and animal bones among the ash.

A hearth (*f*) was also discovered to the W. of D, towards the edge of the platform, 5½ feet long (1·65 m.) (N.N.E. to S.S.W.) by 4 feet (1·20 m.) wide ; the depth of ash varied from 2½ (6 cm.) to 6½ inches (16 cm.), and it lay upon the lower torba and loose stones.

E proved to be the most interesting locality. At first it appeared to be no more than a dirt heap, bounded by a fairly regular wall to the S. and showing protruding blocks to the E. and W., but the presence of bones soon became apparent on the northern side, and 8 inches (20 cm.) below the field surface were found human remains, an animal jaw among them, in great confusion, including a complete human lower jaw and a portion of another one. Stones were mingled with these remains, but there were also discovered rough stone amulets such as are found at Hal Saflieni. Further clearing revealed small heaps of human bones at *g* and *h*. Heap *h* was only 5 inches (13 cm.) below the field surface ; and the remains, consisting of arm and leg bones and a few vertebræ, lay in a mixed heap. With them were flints, two shells, and a lump of red earth. They appeared to be walled in in a rudimentary fashion and an inner layer of ragged crystalline stone was placed close round and underneath them. Heap *g* contained a whole arm, entire with fingers, a leg bone, a few vertebræ, and ribs. The walling-in of *h*, and the presence of flints and ornaments would lead to a presumption of *scarnitura* and re-burial.

A little further E. was found the skeleton of a child (*j*) fairly complete, except for the loss of the top of the skull and of the feet. The skull was only 2 inches (5 cm.) below the field surface, so that its breakage is quite comprehensible, especially as the bone is very thin. The top of a skull was found in close proximity, and though this did not exactly fit, it may very possibly belong, as the lower part of the skull might easily have become flattened. The skeleton lies on its back with the head propped up, the feet pointing due E. The arms are folded across the breast and the left foot is bent under the right leg. The length as it lay was 3 feet 3 inches (1 metre). Several of the second teeth had not been cut. The skeleton was partially walled in with blocks of stone. Beneath the left foot was a piece of bright red earth, and from below the feet protrudes apparently the leg of another skeleton. The feet were 8 inches (20 cm.) below the field surface.

On the W. of E, 6 inches (15 cm.) below the field level, were found the remains of burning on a temporary floor, the ash extending in a circle of 3 feet (91 cm.) diameter. The burning was only superficial and the floor temporary. Its contents were a few animal bones, one human finger-bone, and pottery. To the S. also of this area were fragmentary human bones, together with what are possibly rough stone amulets and the same kind of crystalline rock as that found at (*h*). In fact, inside the outer blocks running along the S. of this area, is a regular little wall of the same crystalline rock, and it would appear that the whole heap was regarded as a cemetery and that this particular kind of rock had some ritual significance. Clearing to the W. of this area led to the important discovery of a complete male skeleton (*k*), lying perfectly flat with the feet to the E.N.E. ; it is surrounded by a wall of partially squared blocks roughly following the outline of the body. It lies for the most part on a torba floor, but in parts upon the underlying loose stones. Upon the chest were stones of about 2½ inches (6 cm.) diameter, and a small stone under the neck supported the chin. The depth below the field surface was 1 foot (30 cm.). The length as it lies is 5 feet 9 inches (1·75 m.). When it was uncovered, practically every bone was perfect and *in situ*, and not a tooth was missing. Besides rough amulets an image of an oyster-shell roughly carved in stone was found. The arms are folded over the breast, the legs quite flat, the feet being tilted a little towards the left. The feet rest against a rubbish heap, which appears to have been dug into for the purpose of burial, as it ends abruptly and does not extend over the body. The soil in this is extremely compressed, and contains pottery, animal bones, and carbonised matter. The heap continues downwards into a hearth situated upon the torba immediately overlying the loose stones, that is, the same torba on which the skeleton lies. The ash seems to extend beneath the skeleton of the child. It would appear, therefore, that burials were made in the rubbish heap, which was dug into to the level of the torba, and even through it. The presence of the ash of *k* and also of hard compressed earth on the western side of the skeleton also corroborates the view that the heap was dug into. As regards the period of the burial, it would at first sight appear to fall into the latest period but one, but it should be observed that in areas C, E, and the outliers of D, there is only one torba, while there is no reason to suppose that the rooms were not used in the latest period. As the torba of these lies upon the loose stones like the

second torba in A and B, it is probable that it belongs to both the two last periods. The regularity with which the upper torba follows the lower in A and B, the fact that the rooms represented by both torbas were coterminous, and the similarity of the finds above both floors, lead to the supposition that the latest torba is but a re-flooring of the dwelling, perhaps owing to the fact that rooms A and B would be rather low compared with the levels of C and the western portions of D. It is probable, therefore, that the two last periods are practically the same, and that the burials belong to either or both.

Judging from the two skeletons discovered, the third apparently lying beneath the child's, and the two lower jaws, it might be gathered that five people were buried in this area.

There is a small hearth, 3 feet by 2 feet (91 x 61 cm.), depth 4 to 6 inches (10—15 cm.) at *l*, against the stone wall. It rests partly on cobbles, and contained pottery and a few bones.

At *m*, 6 inches (15 cm.) below the level of D on the side of the platform towards F were also a few disordered human and animal bones, and at *n* a little lower down and 1 foot (30 cm.) from the corner stone of the platform is a hearth 1 foot 11 inches (60 cm.) below the lower floor of D. It is 2 feet (61 cm.) wide (E. to W.) and 1 foot (30 cm.) long, and the depth of the ash is 5½ inches (14 cm.) Its only contents are thoroughly carbonised grey ash, which has almost the appearance of cement. It is not on a floor, is rather above the level of pavement F and lies almost among the foundations of the northern wall.

At the edge of the pavement below the western edge of D was found a stone slab (*o*) 1 foot 10 inches long by 1 foot 4 inches wide (57 x 39 cm.) tilted up towards F and resting against a stone at each end. This is possibly a threshold belonging to the later period.

A 4 foot (1·22 m.) trench XY was cut through the whole structure in a W.N.W. direction from a point N. of the three megaliths through areas A and D, and brought to light a third floor. A section in A from the top is as follows :—

Torba (yellow)	1¾ inch (4·5 cm.)
Dirt	2 inches (5 cm.)
Torba (yellow)	2½ inches (6 cm.)
Dirt	½ inch (1·25 cm.)
Loose stones	2 feet (61 cm.)

Smooth compact floor of black earth and fragments of limestone	2 inches (5 cm.)
Loose stones	9 inches (23 cm.)
Fine red earth	10 inches (25 cm.)
Bed-rock.	

A section in D reads :—

Torba	2 inches (5 cm.)
Loose stones	1 foot 9 inches (53 cm.)
Dirt floor	1 inch (2·5 cm.)
Loose stones	1 foot (30·5 cm.)
Bed-rock.	

On the N. side of the trench in A a shelf of 1 foot (30.5 cm.) was left showing the second torba. Only part of the lowest torba was dug into, the rest being left *in situ*. The following is a description of what was found in the trench on the level of the lowest floor, reading from E. to W. :—

(1) Megalithic wall	4 feet (1·22 m.)
(2) Floor	11 feet 6 inches (3·5 m.)
(3) Flat, well-squared slab . .	2 feet 6 inches (·76 m.)
(4) Floor	19 feet 2 inches (5·85 m.)
(5) Megalithic wall	1 foot 7 inches (·46 m.)
(6) Bed-rock	5 feet 11 inches (1·8 m.)
(7) Megalithic wall	2 feet 5 inches (·74 m.)
(8) Bed-rock as far as F . . .	9 feet (2·74 m.)

The edge of the slab at (3) runs N.E. by N., and its surface is 2 inches (5 cm.) above that at (2); at (4) there is a further rise of ¾ inch (2 cm.). One foot seven inches (48 cm.) from the beginning of (4) large shaped stones are used to support a soft stone slab which forms part of the floor of D, but the construction is of later date than the floor, and lies upon it. The trench showed that the existing remains of the wall between areas B and E were formed, at least in part, of megaliths belonging to the same period as the lowest floor.

A trench was also made in a westerly direction from a point 3 feet (91 cm.) N. of the three megaliths. This extended as far as the edge of B. The section from the top reads :—

Torba	2 inches (5 cm.)
Dirt	2 inches (5 cm.)
Loose stones	1 foot (30 cm.)
Dirt floor	1 to 3 inches (2·5–7·5 cm.)
Loose stones	9 inches (23 cm.)
Black soil	6 inches (15 cm.)
Rock.	

The section at the N. of the three big stones on their northern side shows them to be 4 feet 5 inches (1·35 m.) high, while the southern one is 7 feet (2·13 m.); the foundations are 3 feet 8 inches (1·11 m.) deep.

The lowest floor must be that of the first megalithic building of which portions of the walls remain to the N. and E., while foundations are apparently shown to the W. at (5) and (7) in trench XY. The cobble floor F appears to belong to this period. The three great stones from their upright position, edge to edge, and their concave formation, are characteristic of the megalithic period, and the building appears to have been a dwelling. In close connection with this appear to be the sites 120 feet (36 m.) away to the E.N.E., separated from each other by a megalithic wall running in a W.N.W. direction for 27 feet (8 m.) and rising 2 feet (60 cm.) above the field surface. The areas are paved in the same manner as F at depths respectively of 5 to 9 (13–23 cm.) and 9 to 12 inches (23–30 cm.) below the field level. The greatest length between the extremities of these two areas is 77 feet (23 m.) (N. to S.). Immediately below the pavement of the southern area is another at the level of that of the northern.

It appears that in later times the main megalithic building was filled up with stones (possibly taken from the cobble pavement), which were overlaid by the torba floors of the upper portions of the structure. The megalithic walls formed foundations for those of the later period. The entrance in later times was probably either on the S. or the W. where the field level and that of the building is the same; possibly across the slab (*o*). The curve of the three great stones and the step upwards in the lowest floor towards the W. in the trench XY suggest that there may have been a front entrance in megalithic times to the E., just N. of the slabs.

Objects.

Implements.—Two portions of a stone basin or mortar were found in D just below the field surface, and still further down a complete mortar in two pieces, 13 inches by 15 inches (33 cm. × 38 cm.) was discovered in the same locality under the stones. A stone pestle was found in E 2 feet (61 cm.) down. A soft stone hammer was discovered in the same locality, 13 cm. in length along the top.

Many flint scrapers and knives were found, and the chert implements were still more numerous. A very fine chert scraper, 4 inches by 2¼ inches (10 × 5·5 cm.) was found in the upper part of E and another near the surface on the north-eastern outskirts of the building. Part of a flint knife was found at H, and a very fine one with two edges, 5 inches (12·5 cm.) long, was discovered in the S. part of F. It appears to have been broken in excavation. D was particularly rich in flints, and here above the upper torba was found a small red flint saw of very finished workmanship. Perhaps the most striking feature of all is the abundance in which obsidian was found. The following are the localities:—D in trench XY above lowest floor; 6 inches (15 cm.) deep in F (S.); (a fine knife also at the same place and depth); 4 inches (10 cm.) in F (W.); (end of a knife in the same); 1 foot (30 cm.) deep at Y.

Two bone awls were discovered on or near the field surface, one very fine straight one, 4½ inches (11·5 cm.) long and well sharpened, another curved.

Ornaments and Miscellaneous.—The rough amulets in E have already been mentioned. Several smooth pebbles were also found, and in particular one large yellow one at D above the highest torba, partly rubbed into triangular form for an amulet.

A smooth red terracotta cylinder, probably part of a cone, about 2½ inches (6 cm.) long was found at D above the highest torba, and also a rougher fragment, which might have been the end of such a cone. In the same locality a terracotta image, 1½ inch (4 cm.) high, of a spiral conical shell came to light. Moreover at F (S.), and at A between the highest and second floor, partially bored bone ornaments were found resembling nipples. A black terracotta bead, ¾ inch by $\frac{11}{16}$ inch (2 × 1·75 cm.), lay beneath the large stones in D. In the same area, almost on the loose stones, a clay 'marble' showing traces of red paint was found. Here too below the

second torba were discovered the end of a cone in soft stone carved with longitudinal grooves, length 3¼ inches, width 2¾ inches (8 × 7 cm.), resembling more than anything a fossil sea-urchin, a little polished stone figure, rather shapeless, but somewhat resembling a woman, with a few rudely carved lines upon it, 2 inches high by 1½ inch wide (5 × 4 cm.) and with a convex base on which it rocks, and a rude image in soft stone, 2¼ inches long by 1 inch wide (5·5 × 2·5 cm.), resembling a bird, with red paint on the head. Many of these objects were possibly toys.

Fossil shark's-teeth were found at D among other places, at F (S.) a fossil oyster-shell, and at F (W.) a small shell painted red. In the short trench N. of the large stones was found an annular ornament, with red paint upon it, measuring 2 by 1¾ inch (5 × 4·5 cm.) made by cutting off the top part of a large limpet shell. There is a similar object in the British Museum from S.E. Spain, designated as a bracelet. Four soft stone cylindrical discs, 2 inches high by 4½ inches wide (5 × 11·5 cm.) were found in D, and a round pebble of igneous rock, probably used for heating purposes, in E.

A few more modern objects were found, suggesting the presence in the vicinity of a Roman villa, viz. tinted glass at J, and copper coins, one above the torba at D, and another 6 inches (15 cm.) deep at J (E.). Only one of these is identifiable, and may be assigned to the Aragonese domination of Sicily. Lozenge shaped tiles were also found in uncovering the wall at J.

Bones, etc.—Sea-shells, evidently the remains of food, were found in fair abundance. In the hearths, and scattered about the structure, were numerous animal bones, mostly burnt and fragmentary, and split for the extraction of the marrow.

Through the kindness of Dr. Smith Woodward of the British Museum, to whom the bones were sent for examination, some detailed account can be given of them. Those from A and B are of the pig and other domestic animals; in fact, the bones may be regarded almost exclusively as of such animals as were used for food. From C they are of the ox and sheep or goat. From D, of a large ox, sheep, goat, pig; there is one *humerus* of a swan and human bones are found. From E the bones are naturally in the main human, but among them are those of the ox and sheep or goat; there is also one *humerus* of a large cat, probably the Caffer cat, very similar to a bone found in the caves of Gibraltar.

Those from F are of the ox, sheep, and goat. From *m*, human, ox, and sheep, or goat. From the outskirts of F, human, ox, sheep, and goat.

A large boar's tusk was found above the lowest floor.

To the N.E. of the building were found two pieces of obsidian, but very little pottery and no implements.

The view from the Torri is very fine in all directions, but especially towards Malta on the S.E., and the sea is visible on three sides, namely, at Marsa il Forn to the N., at Xlendi to the S.W. and towards Malta. Due N. is the very obvious landmark (surmounted by a statue) of the conical hill Il-Merzuk.

The construction is rather that of a dwelling strongly fortified at least in the earliest or megalithic period. The earliest building is particularly remarkable for the finished workmanship of the interior, the level and extensive floor, and the squaring of the inner stone-work. In the later period or periods the walls were apparently of smaller stones set upon the protruding megalithic blocks. Areas A, B, and C, and probably D, must have been rooms. E appears to have been the rubbish heap, and, probably later, the burial ground.

The spiral and conical images and the amulets suggest religion and beliefs similar to those evidenced by the various sanctuaries of the islands, and also by Hal Saflieni and Corradino.

Under the direction of the Museum Department the structure has been covered up and the skeletons walled in, so that everything can be re-examined at any future time.

XII.—REPORT ON THE POTTERY FOUND AT TORRI TA SANTA VERNA.

The numbers in round brackets refer to Professor Tagliaferro's paper on the Hal Saflieni pottery in the Liverpool *Annals of Archaeology and Anthropology*, Vol. III.

A. Rough faced wares, ornamented before firing.

(1) Fragments of unornamented large vases of indeterminable shape (A 1).

The clay is grey, firing to a poor yellow or brick-red at the surfaces. There is no slip. In this class may be included a series of open dishes of an average diameter of 30 cm., with flat bottom and vertical wall about 8 cm.

high, the rim being bluntly notched. These dishes abound at Corradino South and Mnaidra. A few fragments seem to be stained inside with a powdery red substance. Cf. Pl. XXV. Fig. 2, No. 2.

(2) Scale ware.

Usually large vases with a very rough surface and no slip. Their colour is generally red or yellow, rarely black or very dark grey. Their ornament consists of fluting (C 4), of overlapping fish-scales in relief, sometimes disposed in horizontal rows (C 5), sometimes with no definite order (C 7), or of large veined leaves in relief, forming scallops (C 6). In a few cases we find a degenerate form of this last, where the leaves are not in relief, but merely shown by deep incisions of the outline and the veins.

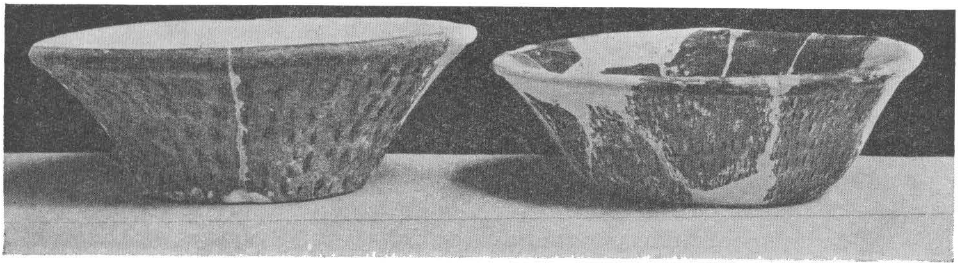


FIG. 23.—PITTED WARE FROM SANTA VERNA. (Scale $\frac{1}{8}$)

Some smaller vases of the common open cup shape [Pl. IX. Fig. 7] are of a better clay, and have an ochre slip on which are raised rows of long narrow leaves in relief (C 8). These vases are common at Corradino South.

(3) Pitted ware.

The vases are usually of moderate size, with a grey or ochre surface, smooth but not polished. In the poor examples the pits are indefinite in shape (B 2). In the better examples the pits are round, elliptical, crescent shaped, or linear, carefully made and evenly distributed (B 3). The finest pieces of all appear to belong to small bowls shaped like an inverted truncated cone with the sides slightly curving out (Fig. 23). The diameter at the rim is about 15 cm. The surface could almost be said to be polished.

In a few cases the pits are used in conjunction with incision to form designs.

(4) Studded ware.

The surface is usually smooth and of a dark colour, and the ornament consists of studs of clay, usually circular, once elliptical, applied regularly all over the vase (D 9). In one case they form only a horizontal zone below the rim, and in another they are combined with deep incision. The space between the studs is occasionally incrusted with white.

This ware undergoes on this site a development which has not yet been seen elsewhere. Instead of the studs being formed of separate pieces of clay and then applied to the vase, a small semi-circular pit is made in the surface of the clay and the clay thus displaced is not removed but shaped into a narrow elliptical stud on the edge of the pit. These studs are flattened and almost polished. Such ware may well be described as both pitted and studded.

(5) Line ware.

The surface is rough, as in scale ware, and of a yellow or reddish colour. On it are incised before firing numbers of parallel vertical lines (G 17). This ware tends to coalesce with the simpler types of scale ware (C 4).

This line decoration is occasionally applied to large vases with a good ochre slip and a slight polish, which more strictly belongs to our Division B.

B. 'Maltese' slip ware.

These are invariably of the same technique. The clay is fairly refined, and the thinly slipped surface may in firing take almost any *dull* shade of grey, brown, yellow, or red. The firing was apparently not under complete control, and many vases are patchy. The colours and the hard surface of this ware make it quite peculiar to Malta. The polish varies immensely, some vases being little more than smooth, the majority rather well polished, and a very few having a very high polish indeed.

All the vases are hand-made, as indeed are all prehistoric Maltese wares as yet known. The thickness of the walls varies from 3 mm. to 20 mm., and in the largest example we sometimes have the same careful polishing as in the smallest. The finest piece is a fragment of an open dish (Type G 25), which is a patchy ochre in colour and has a very fine polish. In a few ochre coloured cups the firing seems to have been almost under complete control, but even here there are patches of darker colour. It is not unusual to find a vase grey or red outside, covered inside with a good

black slip and *vice versa*, and I do not think that this difference is to be accounted for by the difference in the intensity of the firing inside and out. Occasionally, a little red pigment has been rubbed into the rim of the ochre vases during the application of the slip (cf. *supra*, 52).

Many of these vases have no ornament at all, and they then belong to Tagliaferro's classes E 10 and E 11, which differ from one another only in surface colour. Others are incised with designs either before or after firing.

I. Vases incised after firing.

(1) The incisions are made with a fine but *blunt* point, and as they do not penetrate the polish, should hardly be described as incisions at all. The designs, which are barely visible, are usually simple and curvilinear,

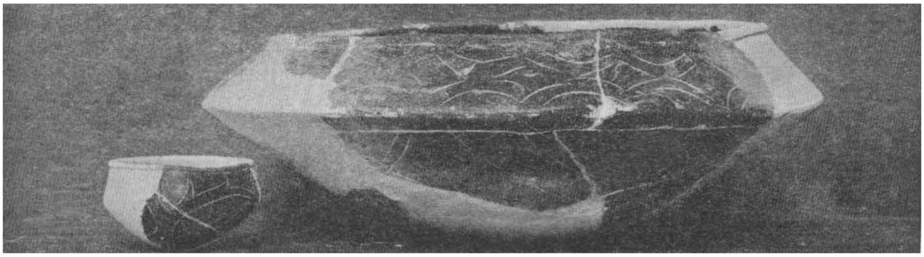


FIG. 24.—INCISED VASES FROM SANTA VERNA. (Scale ⅛)

and the slip is invariably black or dark grey. The same ware occurs at Corradino South.

(2) The incisions are made with a fine *sharp* point. The patterns include all those found at Hal Saflieni. Lattice designs are frequent (G 18) and in some vases they are so carelessly carried out as to be only a mass of crossed scratches. A few very fine cups of ochre ware show a decoration of fine vertical parallel lines—oddly enough on an unpolished slip. Curvilinear designs are very common and the lines are often toothed (G 22). They include simple curved bands and festoons (G 20) (Fig. 24), and horizontal chain pattern with long narrow pointed links. Spaces bounded by curved lines are often filled in with single or double hatching as at Corradino South, or with dots as at Hal Saflieni (G 23). Some fine fragments show a design apparently taken from the vegetable world and carried out with all the conventionality of a freehand drawing-copy

(Fig. 24). Among smaller elements of design are a fish (?), a pair of horns (?), and several examples of the now familiar circle at the end of a curved line.

Colour is applied to these designs in two ways. Sometimes the incisions themselves are covered with a red pigment which easily powders off (G 21). In other cases the design is carried out in curved bands about 8 mm. wide bordered on either side by incised lines. These bands are then covered with a thin matt red paint, very different from the raw pigment just referred to. The vases on which this ornament is found have always a good ochre slip, rarely firing to grey in patches, and the result is pleasing, especially when the portions of the surface outside the bands are filled with punctures. At the same time neither of these wares can truly be regarded as painted, for the colouring is entirely subordinate to the incision.

(3) The incisions are made with a *broad* and sharp point.

This ornament is naturally most common on the larger vases of 'Maltese' ware. The designs are very simple and consist of a few vertical or horizontal lines, set far apart, never in groups. There are occasional examples of more elaborate design, the most striking being a straight line over which are symmetrically placed at short intervals a series of M's.

A remarkable feature of the Santa Verna pottery is the application of this wide incision to the finer wares. On some of the small highly polished vases are deeply cut, probably with a flint, scrolls and other curved motives which show remarkable steadiness and skill on the part of the cutter.

Sometimes the incisions are fitted with broad triangular teeth roughly cut out.

II. Vases incised before firing (incisions always rectilinear, except 2, *f*).

(1) Corradino incrusted ware.

Of this there are three quite unmistakable pieces. The ornament consists of broad bands cut out and then incrusted with a thick white substance, which often falls away. Some of the bands are fitted on one edge with *long narrow* oblique teeth set close together. This ware seems not to occur at Hal Saflieni.

(2) Various incised designs, usually white filled (G 19).

(*a*) Straight lines usually in close parallel groups, the lines having

very short fine toothing on both sides and a white filling. Five pieces *only. Occurs also at Xeuchia.*

(*b*) Rather broader incisions in groups of parallel straight lines, but turning off at an obtuse angle about 5 mm. from their end. The fragments do not show how the lines were arranged on the vase. White filling invariable.

(*c*) Groups of vertically-placed zigzags lightly incised (two pieces) and bands of close, rather deep oblique hatching. (No filling.)

(*d*) Horizontal bands with sparse vertical hatching.

(*e*) Bands of three horizontal straight lines with rows of dots above and below.

(*f*) Simple straight or flowing curved incisions, some of the areas marked out by them being filled with punctures. White filling usual. (G 23 in part.) [1]

C. Other wares.

(1) Bahria cut-out ware.

Of this there are five pieces unmistakable from their surface and design.

(2) Red slip wares.

At first sight the fragments would appear to be Bahria red ware (F 14), but on closer examination only two or three (one being part of a T. handle) can be with certainty assigned to this ware. The rest, although they are of yellow clay and have the requisite deciduous slip, are a little too uneven and too bright in colour and may be local imitations. This is certainly the case with a piece of a bowl which shows a thick but hard unpolished slip carelessly washed on. On the other hand two fragments remain of a vase very superior to Bahria red ware, and more highly polished than any yet found in Malta.

(3) Painted wares.

I have avoided giving this name to these types of 'Maltese' ware in which pigment is used to heighten the effect of incision, without a specially prepared slip. The two types now to be described are however true painted wares. I know of no Mediterranean wares which they resemble closely enough to make a comparison of any value. In particular they have

[1] Note in Tagliaferro's paper, Pl. XIII. Figs. 1–6 and 10 are incised before firing (our class B. II. 2. f.) and Figs. 7–9 are incised after (our class B. I. 2).

nothing in common with Sicilian or Minoan wares, their nearest neighbours.

(*a*) Clay rather coarse, variable in thickness. Very thick cream slip, often both inside and outside the vase, smoothed but not polished on the outside, rougher on the inside. Designs in matt chocolate paint; lines straight, thin, and mostly in pairs, several sets of which pairs seem to meet at various points on the body of the vase. But as

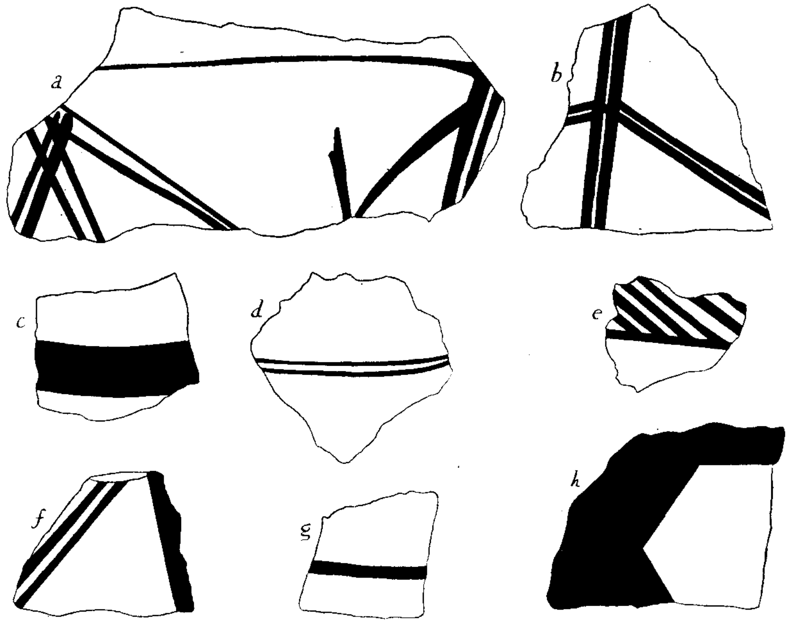


FIG. 25.—DESIGNS ON PAINTED WARE FROM SANTA VERNA. (Scale ½.)

the fragments are small the general scheme of the designs is not clear. (Fig. 25, *a*, *b*, *d*, *f*.)

(*b*) Clay as before, but slip thinner and ochre in colour. Surface unpolished and often very rough and lumpy. Designs in matt brick red, usually in wide straight bands. Fragments too small to give much idea of the decoration. One very small piece (*e*) shows a decoration of hatching. (Fig. 25, *c*, *e*, *g*, *h*.)

The handles.

The handles are of the usual Maltese types. We rarely find simple

holes pierced through the vase wall near the rim, or knobs raised on the vase with a narrow string-hole through them. The tubular handle, (*a tubetta*) is common, consisting of a cylindrical tube fastened horizontally on to the vase. In large coarse vases we find the tunnel handle, a curved passage cut in the wall of the vase, only the two circular entrances being visible from without.

All the handles as yet mentioned are formed to take a string or rope. Those adapted for the fingers are placed vertically and are broad but light. They are flattened above and thus have a sharp elbow at their outermost point. One handle of a much taller type has incised on it an X-shaped design which possibly points to the influence of Bahria ware in which this feature is common.

XIII.—IT-TORRI TAL WILGIA.

In Malta there exist a number of round towers, three of which (It-torri-ta-Jauhar, near Gudia; Torriet and a tower at Tal Bakkari, both near Zurrico) are described by Mayr (*V.D.* 685 = *P.M.* 59, cf. *I.M.* 42), who considered them to be contemporary with the other megalithic monuments of Malta; while others remained unknown to him.

Among these are a tower in the field called Ta Cieda, near S. Julian's, preserved only in a very fragmentary condition, and It-Torri Tal Wilgia, or Il Borg, to the north-west of Mkabba.

Excavations were conducted at the latter in June 1910, with a view to completing its plan and determining its date.

Rather more than half of the external wall is preserved to a height of seven courses, on the north-east side. (Figs. 26, 27.)

The internal diameter was found to be about 9 metres, and the foundations were 1·70 metre thick, the walls decreasing in thickness as they ascend, so that they are 1·45 m. thick at the bottom and 1·10 m. at the top. On the north-east side is a shelf of rock, apparently cut artificially to serve as the foundation, 0·45 m. below ground level, 0·35 m. high, and 0·40 m. wide. As is the case at It-torri-tal-Jauhar, the walls are in most cases a single block thick, and are rectangular, and arranged in courses, though roughly cut, especially on the inner side, where they are quite irregular. The external jointing is bad, and the small stones

which may be seen in the interstices were probably inserted in modern times.

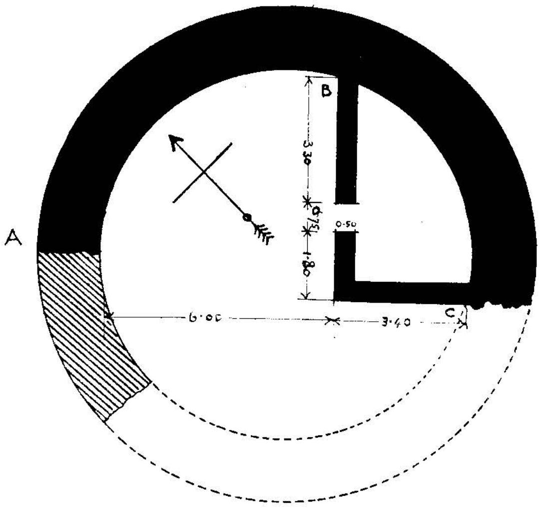


FIG. 26.—PLAN OF IT-TORRI TAL WILGIA.

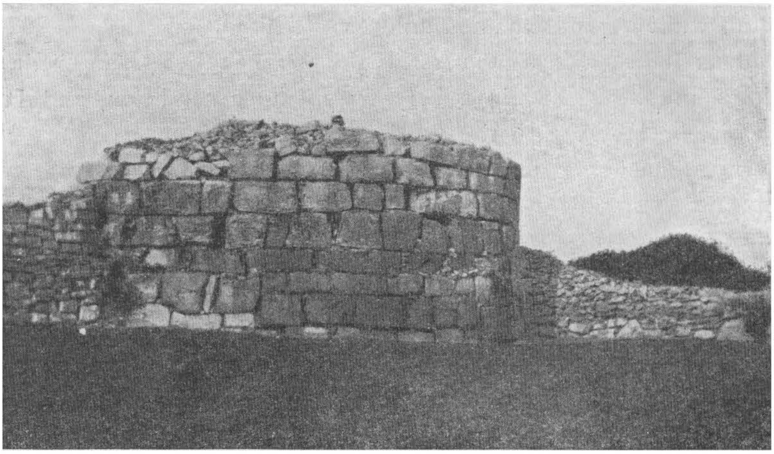


FIG. 27.—EXTERIOR OF IT-TORRI TAL WILGIA (N.E. SIDE).

The first three courses from the bottom measure respectively 0·75, 0·35, and 0·55 metre high.

Of the south-west portion of the circumference nothing was visible above ground, and, as shown in the plan, only a little of the foundations could be discovered beyond A, and nothing beyond C: elsewhere the solid rock was reached at a depth of about 0·60 metre.

There are, however, the remains of an internal chamber, similarly constructed, but somewhat more carefully, the blocks being better cut and jointed: it was entered by a doorway 0·75 metre wide in the north-west wall (Fig. 24).

Its walls are formed of blocks 0·50 metre thick, measuring 0·62

FIG. 28.—INTERIOR OF IT-TORRI TAL WILGIA LOOKING E.

and 0·60 metre high: one of the blocks (that in the second course from the bottom at the S. corner) is 1·65 metre long.

The footing course is 0·55 metre high, and projects 0·10 m.

The south-west wall is less well preserved, but its line is indicated by the lowest blocks.

The threshold of the inner chamber is about on the same level as the modern field. The chamber had been filled with stones taken off the field, which it was impossible to remove with the means at our disposal; nor did the discoveries made in the rest of the interior of the tower seem to justify the expenditure of more time and money.

In the interior of the tower the rock was found everywhere at a

depth of about 0·65 to 0·60 metre, except at the angle B, where it was 1·50 to 1·75 below the modern field level.

The fragments of pottery discovered in the course of the excavation belong at earliest to the Punic period, and furnish no evidence for Mayr's theory that these towers are prehistoric. Before definitely rejecting it, however, it will be well to carry on investigations in one or more of the other monuments of the same nature which we have mentioned above.

In the field to the S.W. are scanty traces of what may have been another building of a similar nature: two courses of masonry 1·15 m. thick are seen.

Under the field wall to the N.E. of the tower is the shaft of a small Phoenician tomb: it measures 1 metre by 0·88: at each of the narrower ends is a door to the sepulchral chamber.

POSTSCRIPT.

Dr. T. Zammit discovered two neolithic stations, in September 1912, one on the plateau known as 'Il Kallilja' to the North of the Mtarfa hill, and one on the S.W. of the island on the rocky plateau known as 'Ta San Giorg.'

At the former, pottery of the Bahria type was found (*supra*, 3).

Fig. 1. — Dolmen of Misrah Sinjura, Malta.

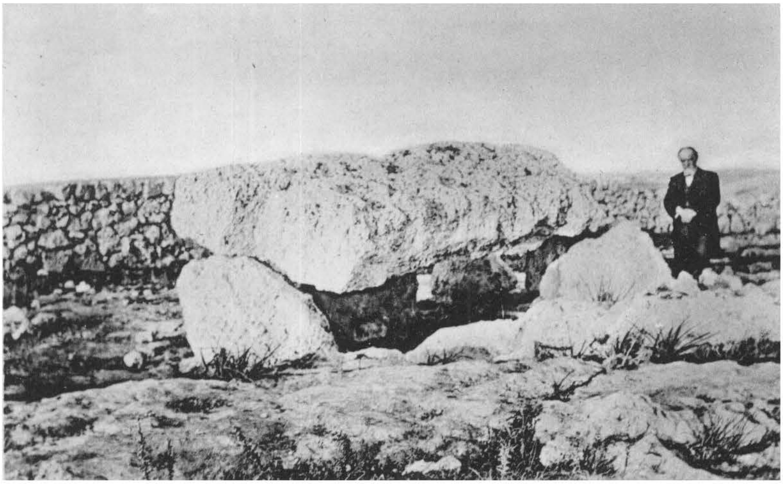
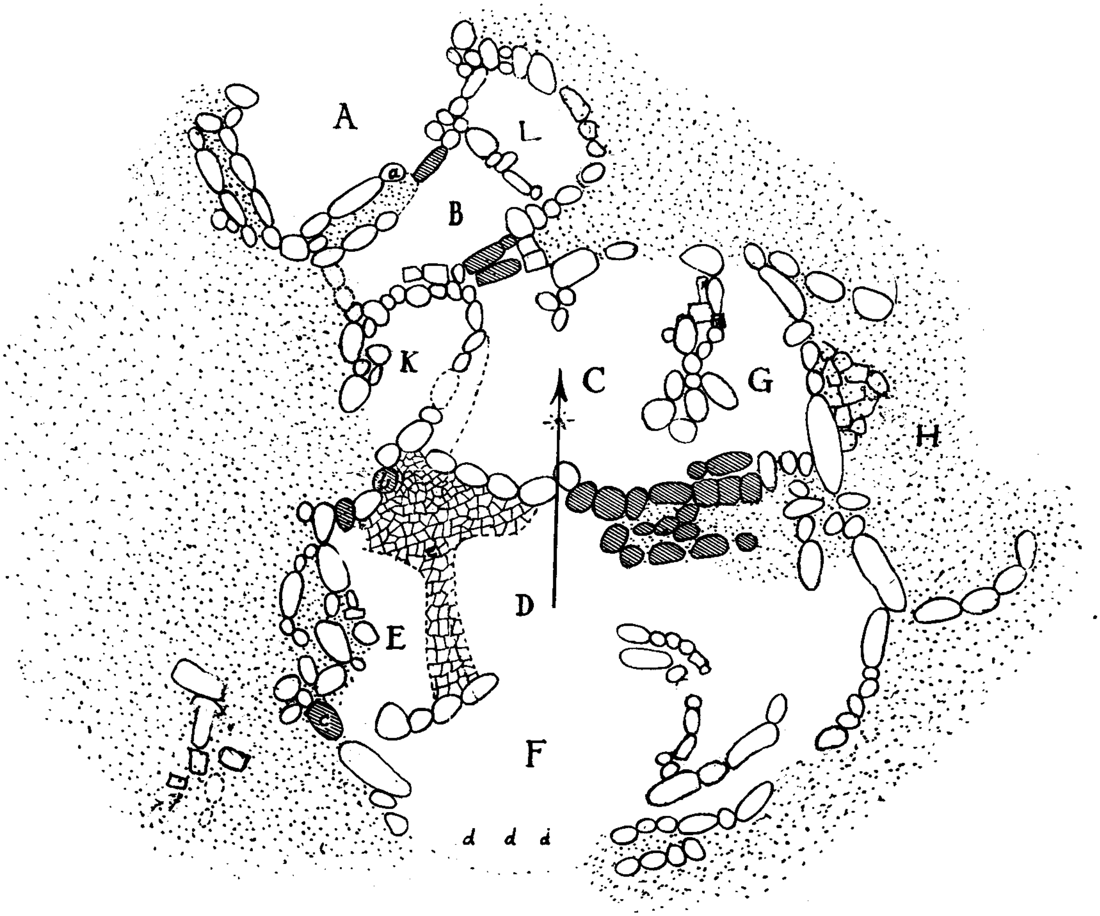


Fig. 2. — Dolmen near Musta, Malta.

PLAN OF REMAINS AT CORRADINO HILL

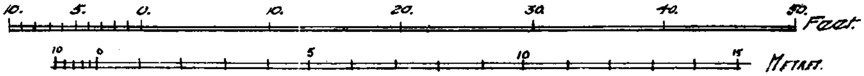
(1st Group.)

(Western.)



REFERENCES.

Vertical } Stones.
Horizontal }
Stone pavement.
Backing rubble.

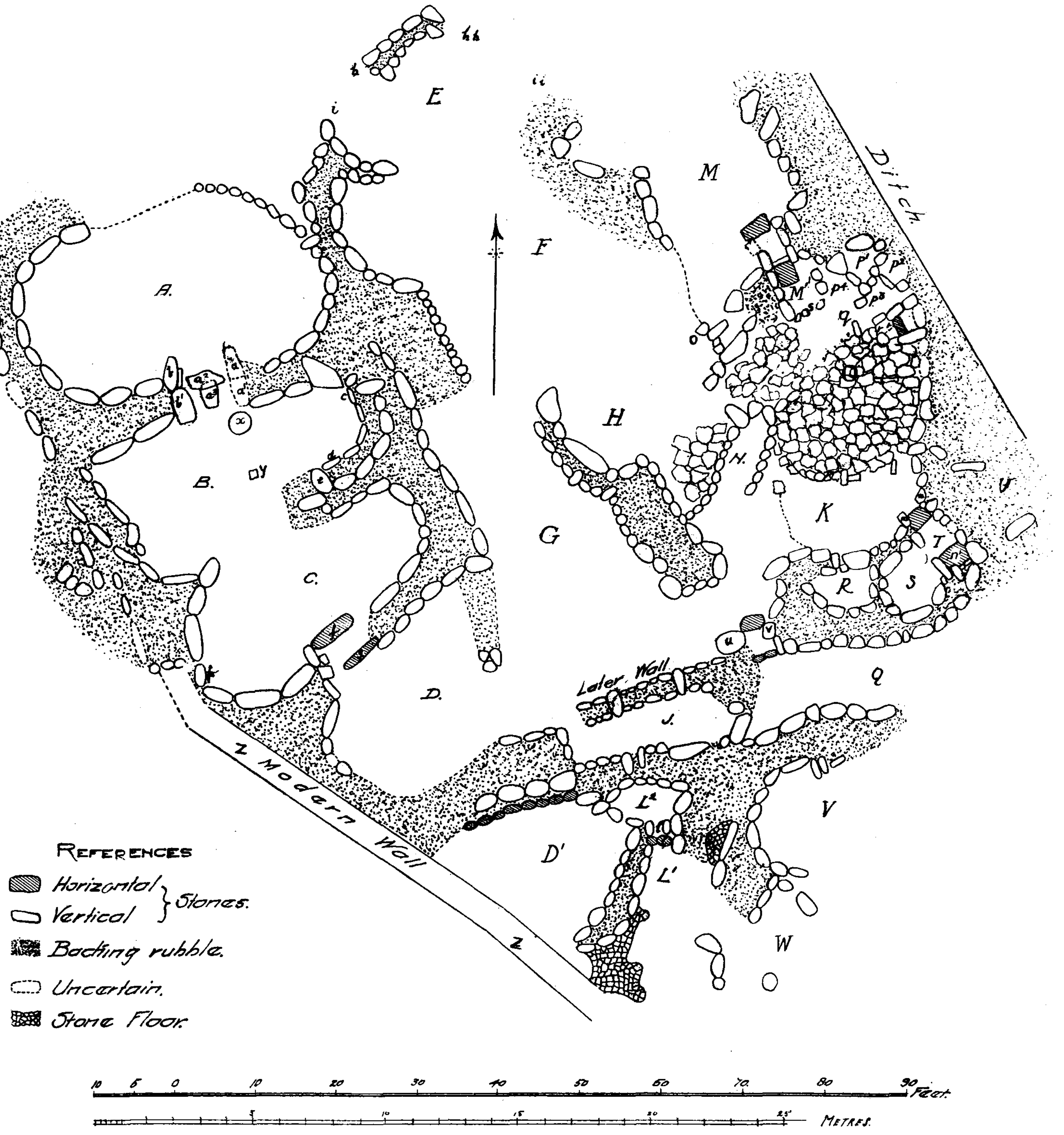


Whiteman & Bass. Photo-Litho. London.

PLAN OF REMAINS AT CORRADINO HILL.

(2nd Group)

(Eastern)



Whitman & Bass, Photo-Litho, London.

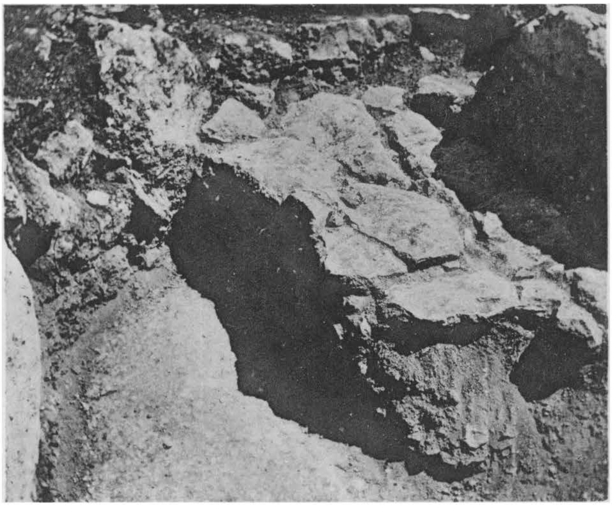
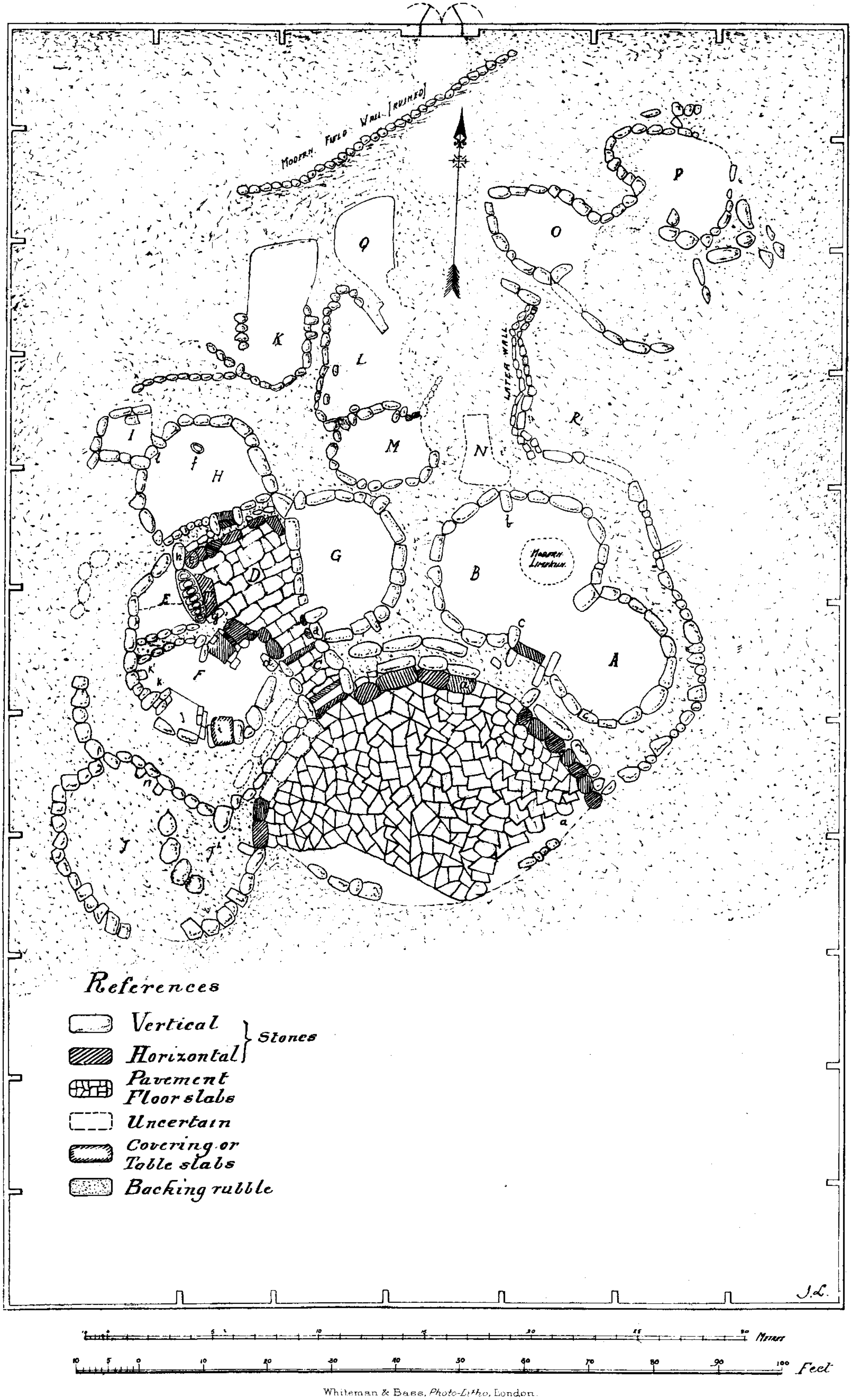


Fig. 1. — Floors in East Building, Corradino Hill (L2).

Fig. 2. — Façade of South Building, Corradino Hill, looking west.

PLAN OF MEGALITHIC RUINS ON CORRADINO HILL AT "IX-XAGHRA TA CORDIN."



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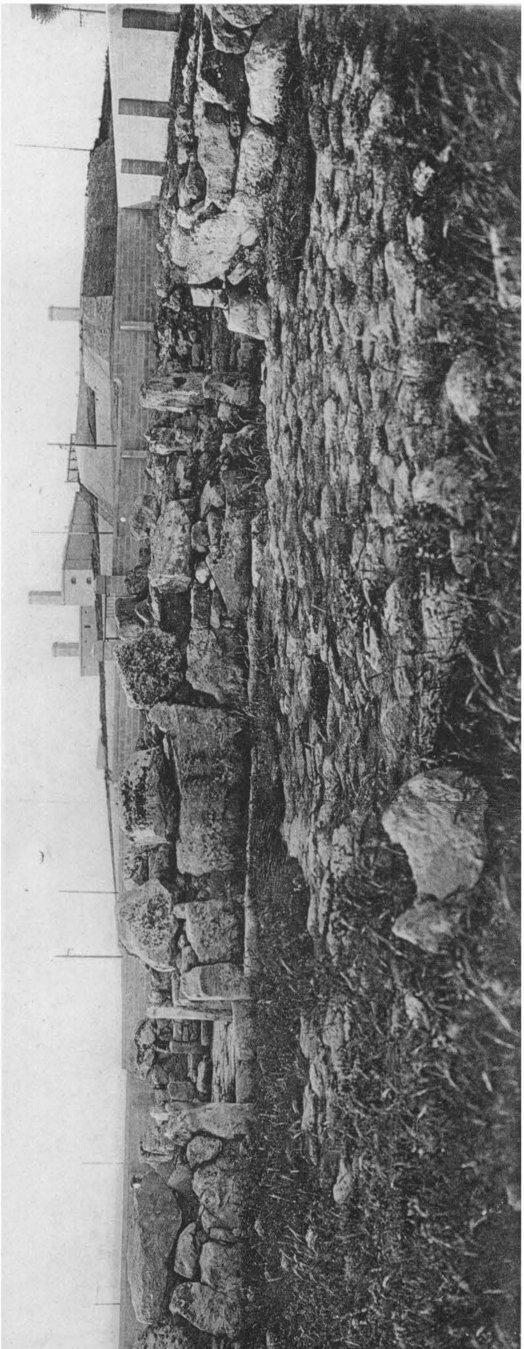


Area in front of South Building, Corradino Hill.

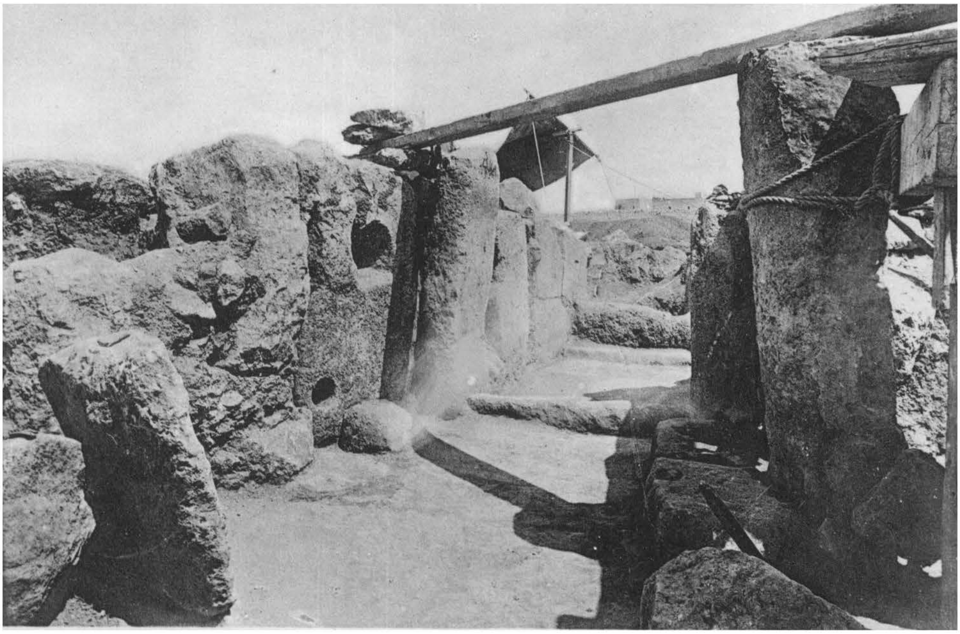


Fig. 1. — South Building, Corradino Hill. Entrance passage (C) looking outwards.

Fig. 2. — South Building, Corradino Hill. Trough in D.

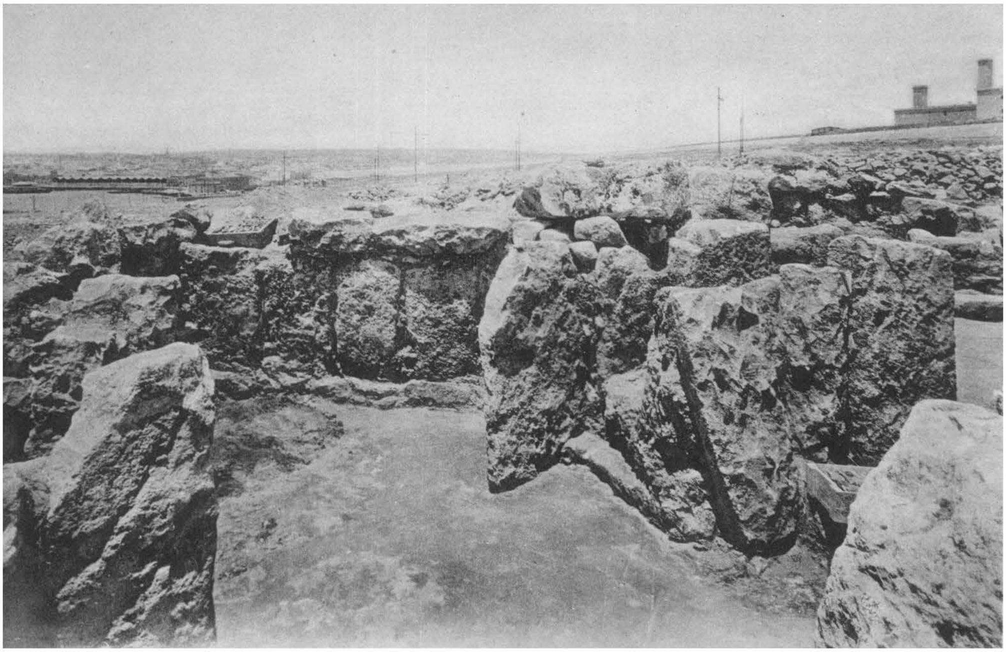
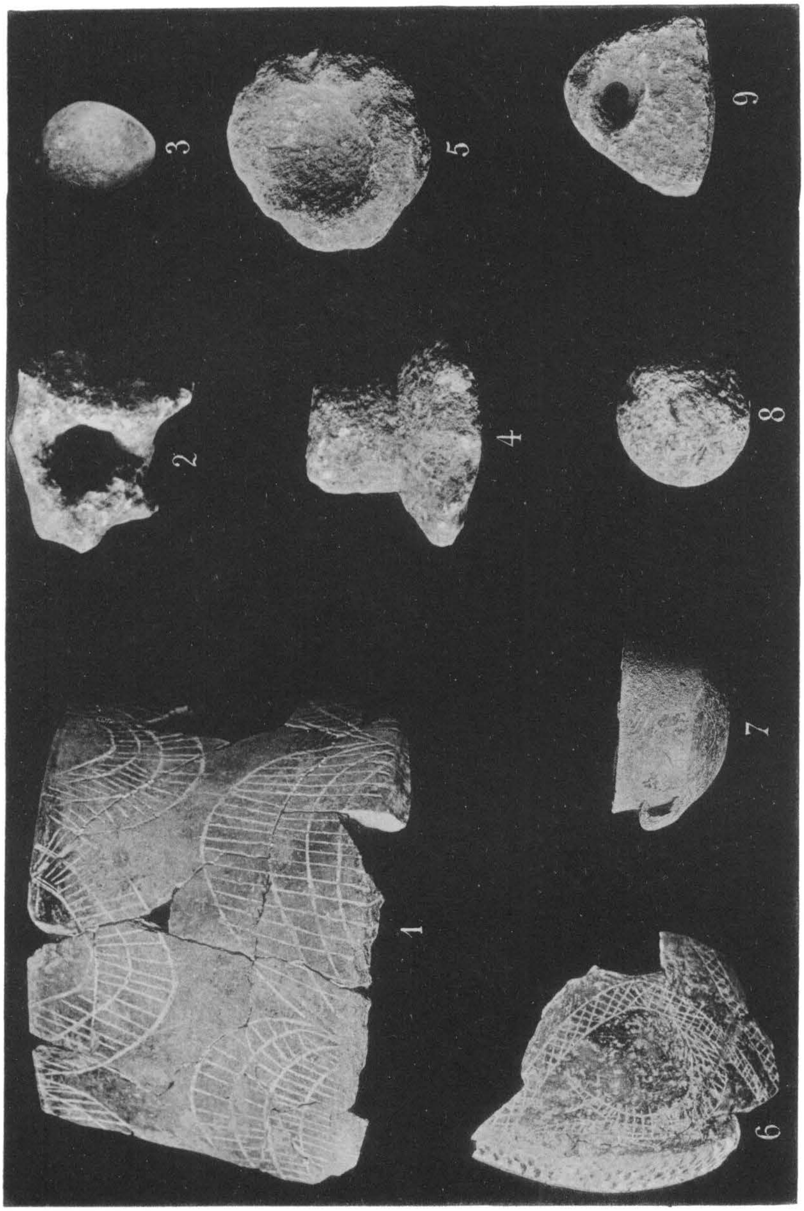
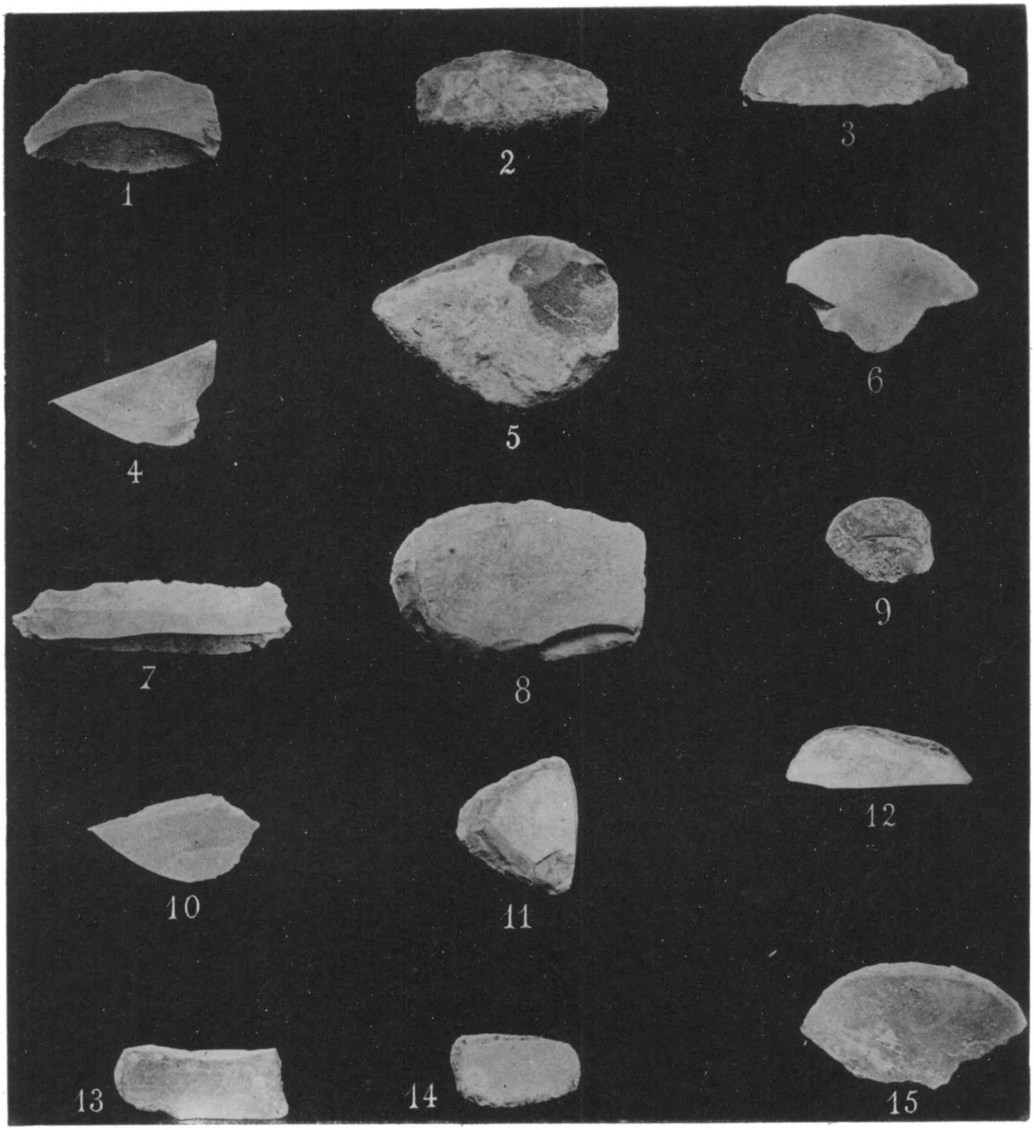


Fig. 1. — South Building, Corradino Hill. Wall in F.

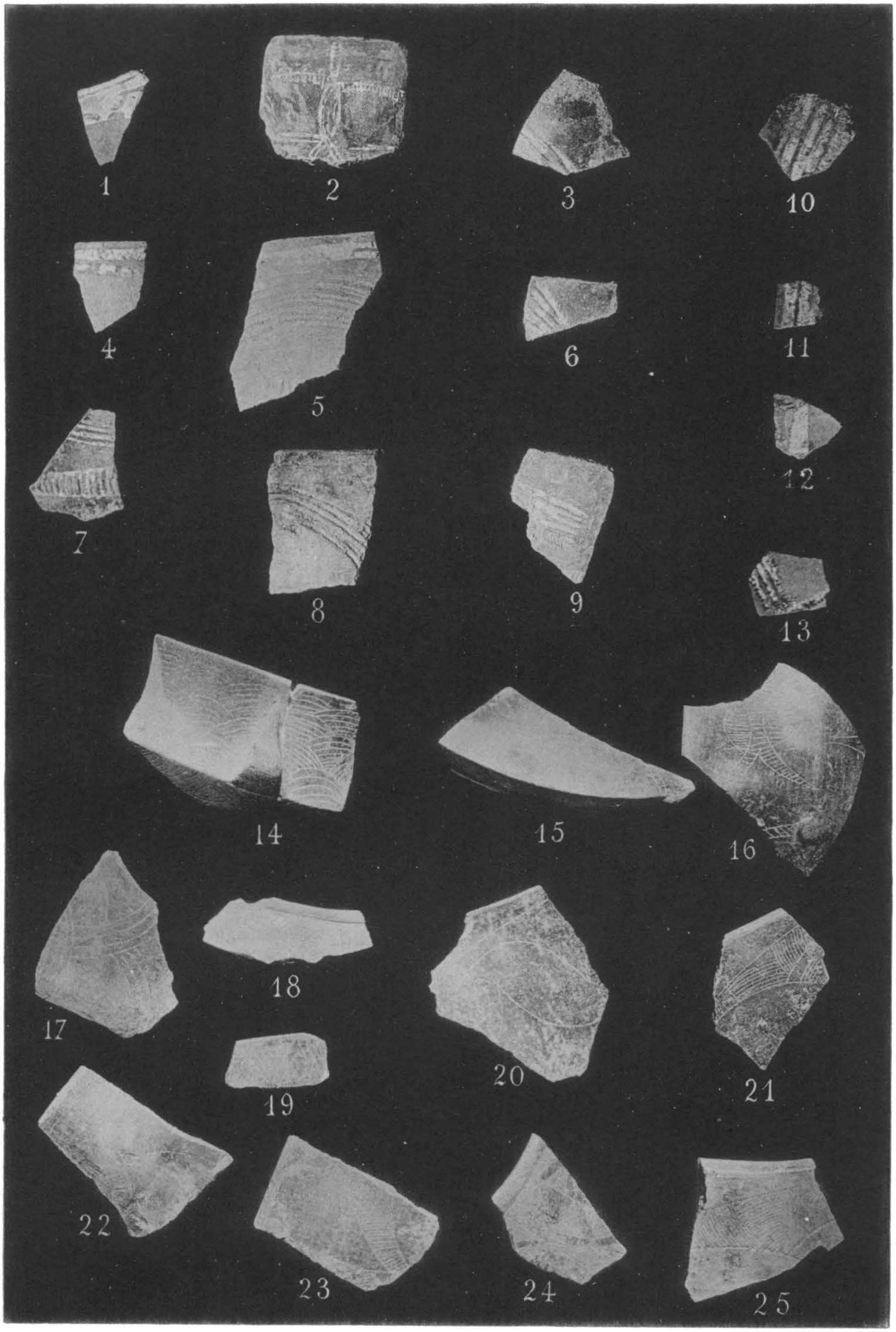
Fig 2. — South Building, Corradino Hill. Entrance passage to F, looking outwards.



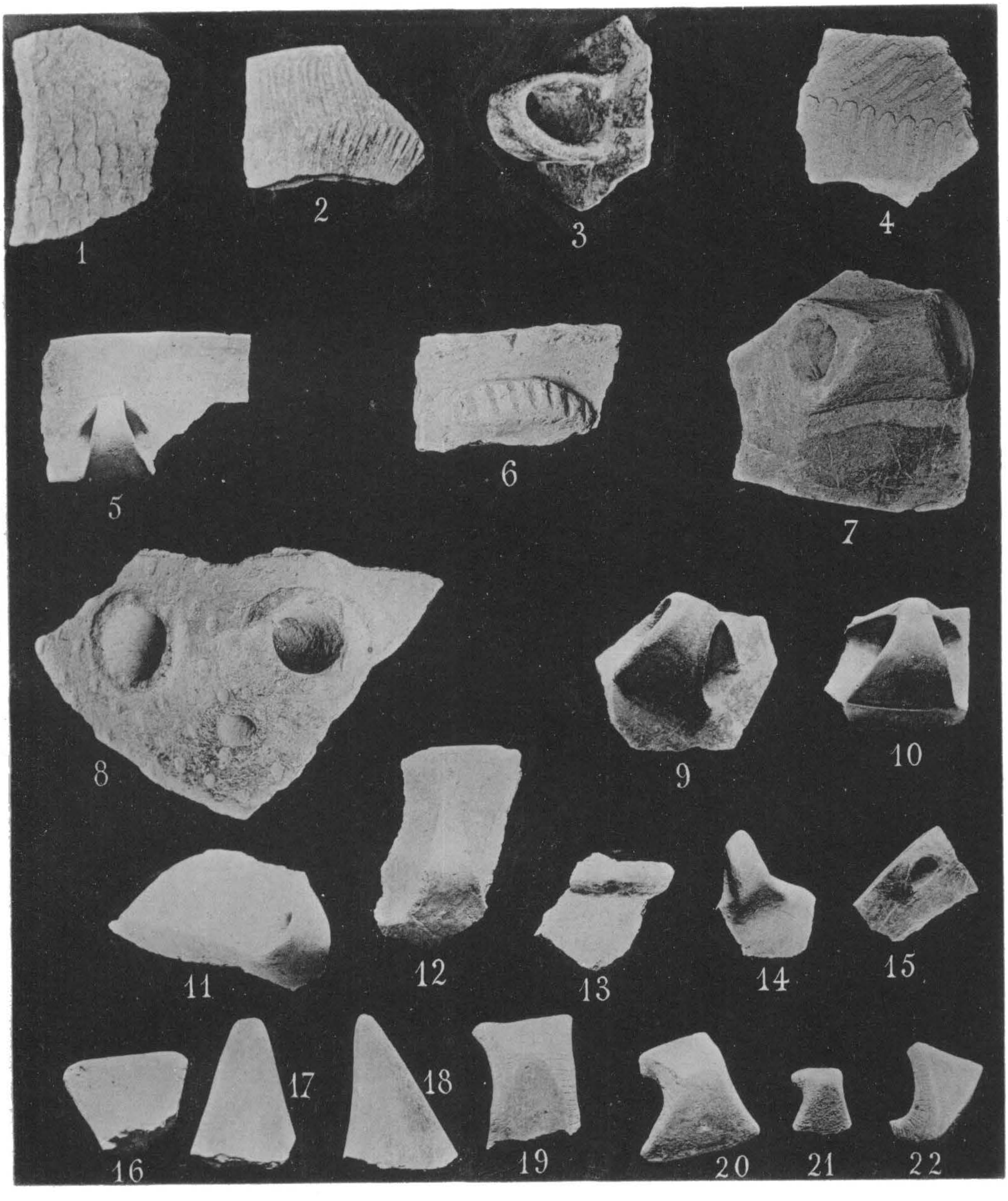
Pottery from South Building, Corradino Hill. (scale 1/3).



Flints from South Building, Corradino Hill. (scale 11/20).



Pottery from South Building, Corradino Hill (scale 3/10).



Pottery from South Building, Corradino Hill. (scale 3/10).

Fig. 1. — Façade of Hagiar Kim.

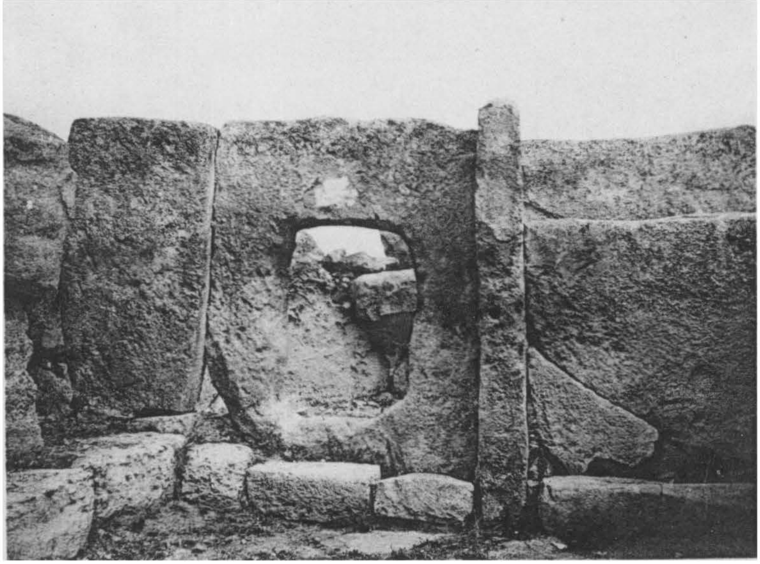


Fig. 2. — Hagiar Kim, entrance to north-east apse of A.

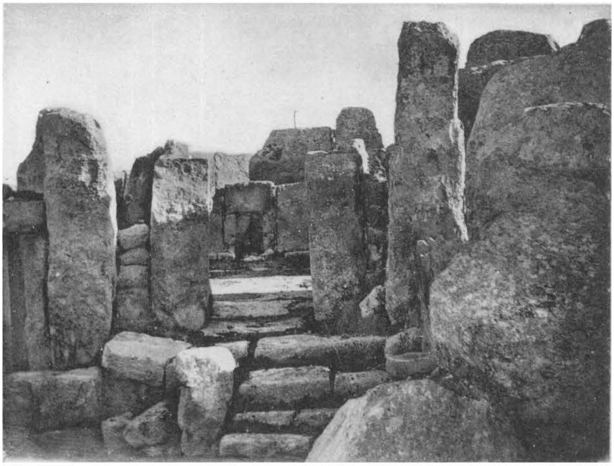


Fig. 1. — Hagiar Kim. View into F from B.

Fig. 2. — Hagiar Kim, point of contact between F and A.

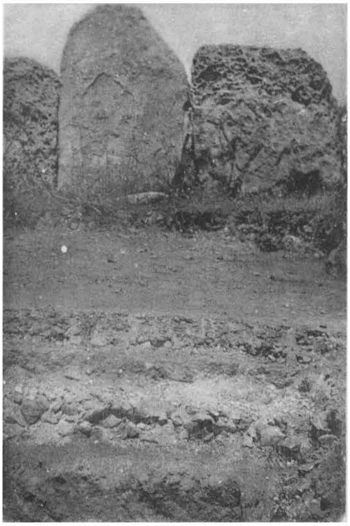
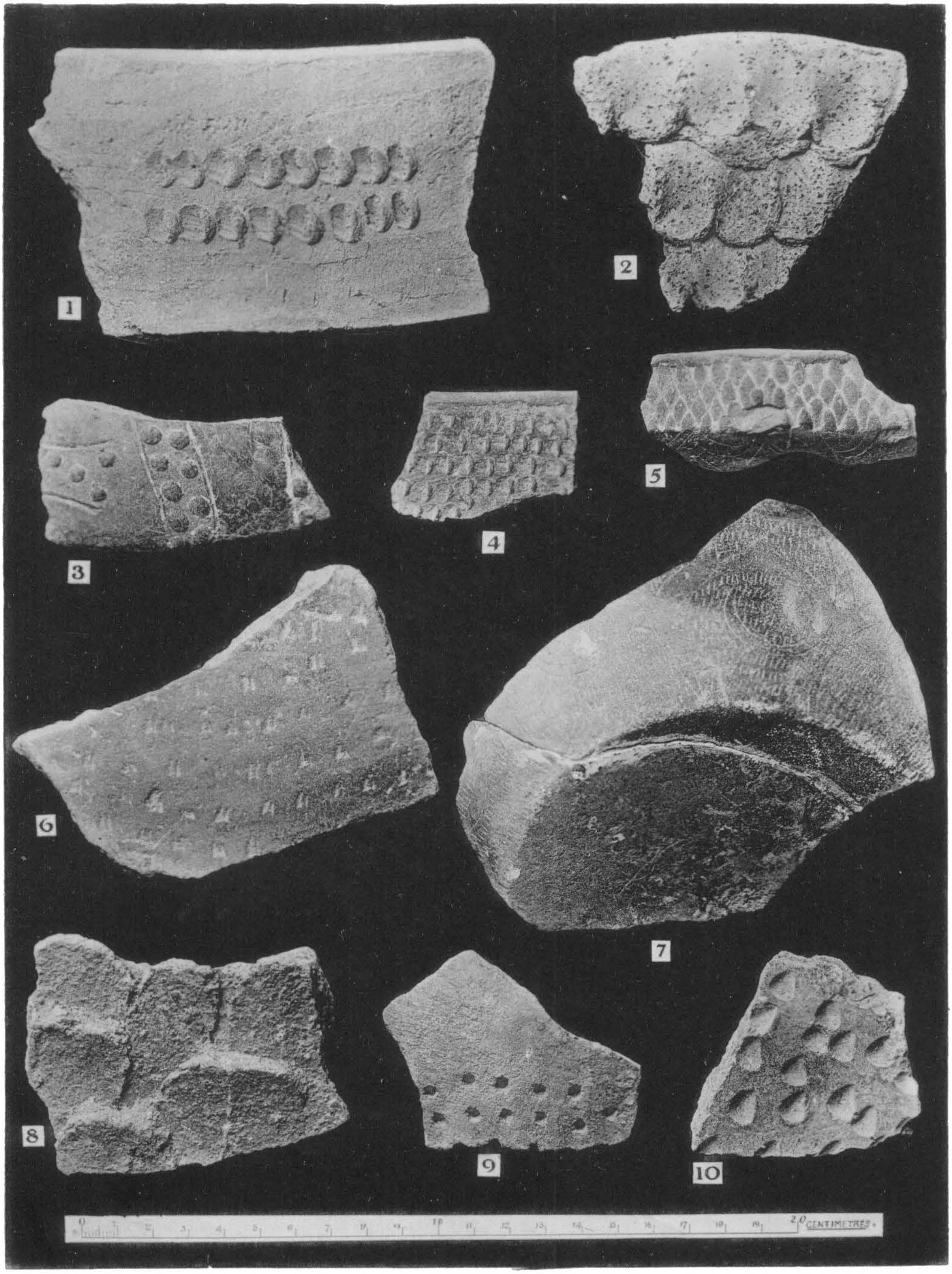


Fig. 3. — Hagiar Kim, floors in W.

Fig. 4. — Mnaidra. Table leg in D.



Pottery from Hagiar Kim.

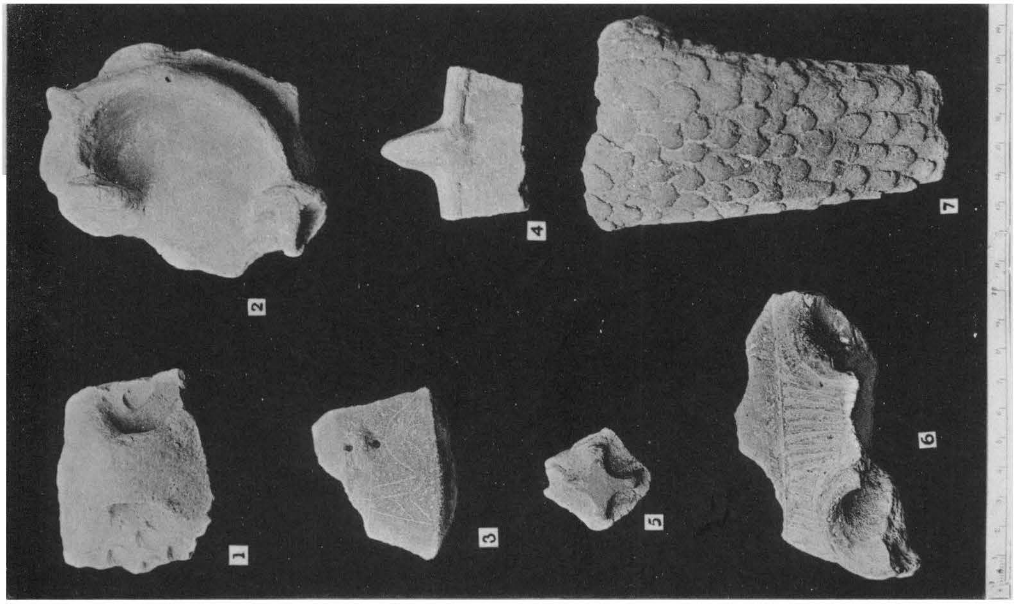


Fig. 1. — Pottery from Hagiar Kim.

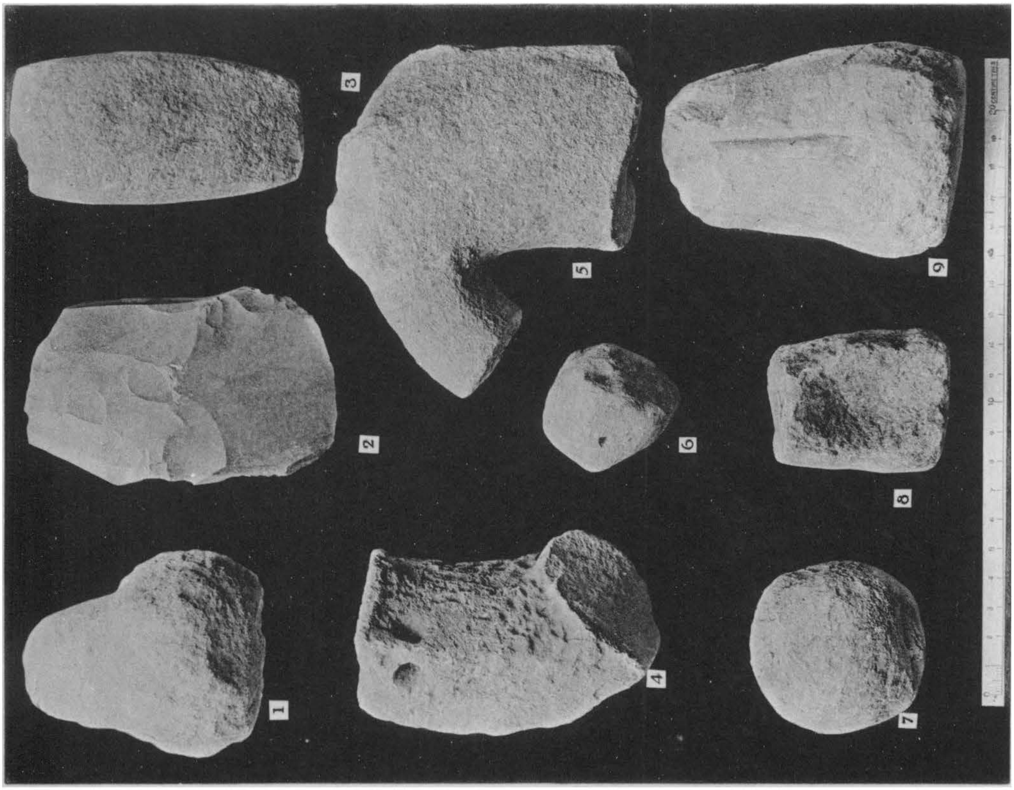
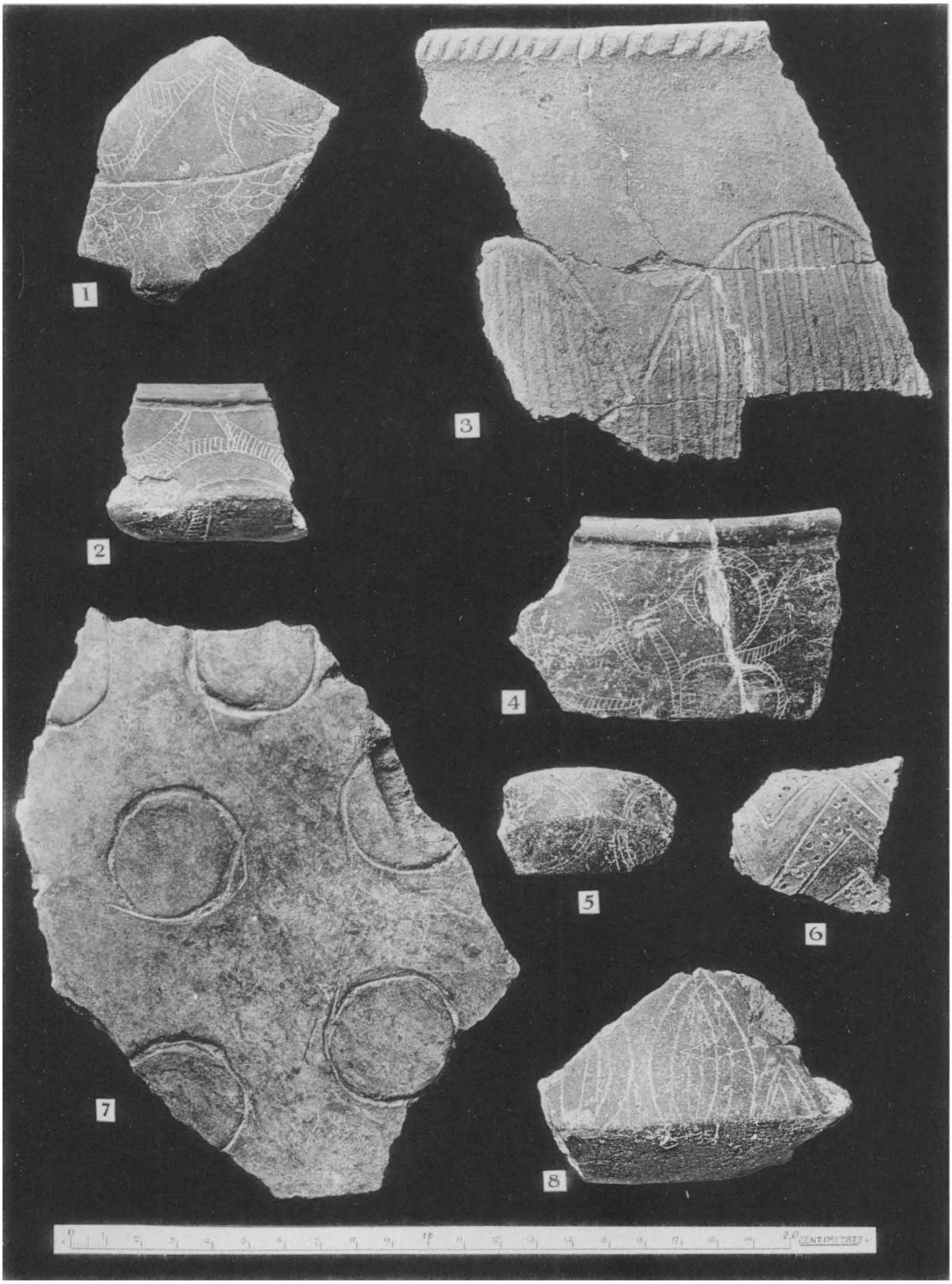
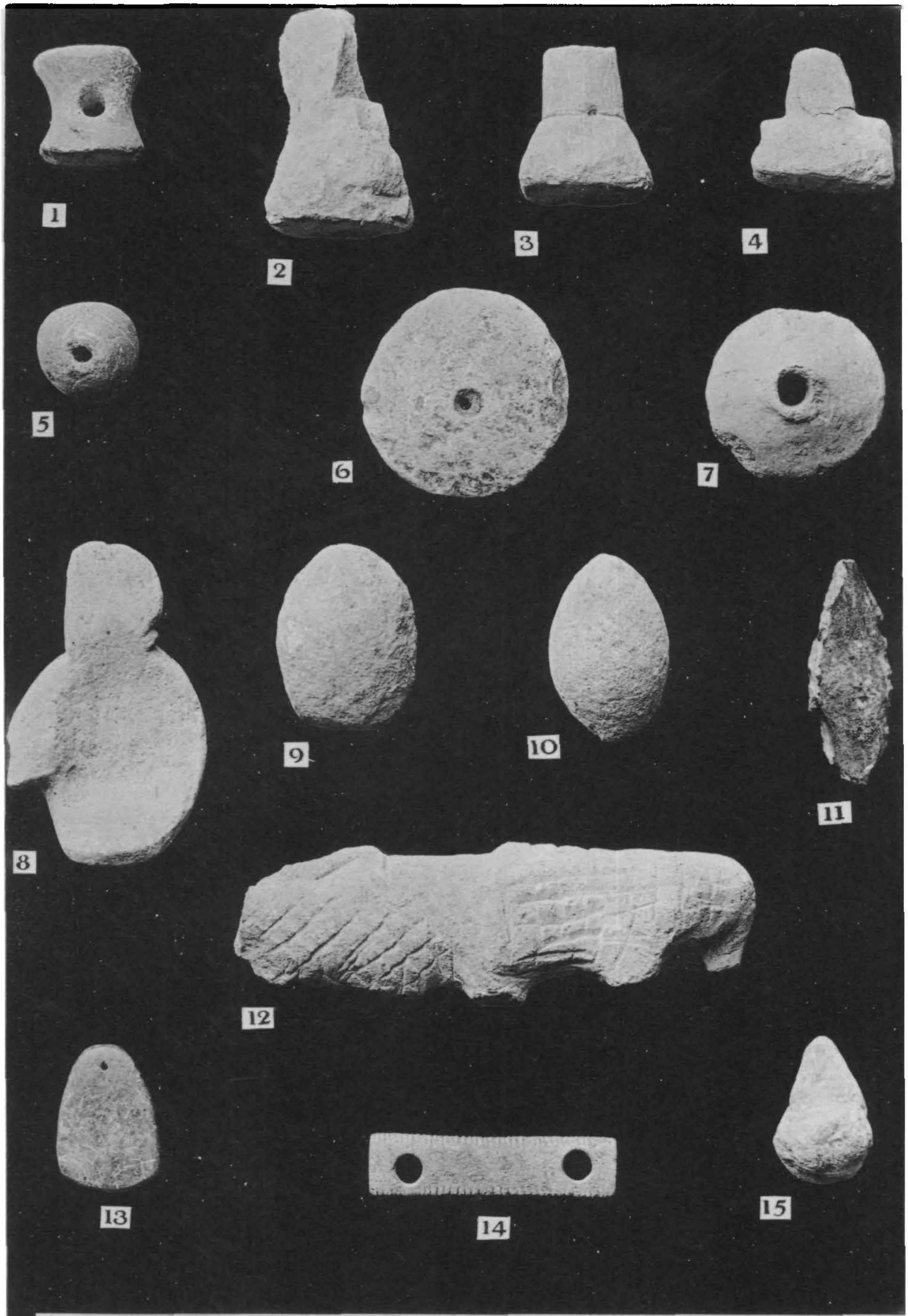


Fig. 2. — Objects of stone from Hagiar Kim.



Pottery from Hagiar Kim.



Small objects from Hagiar Kim.

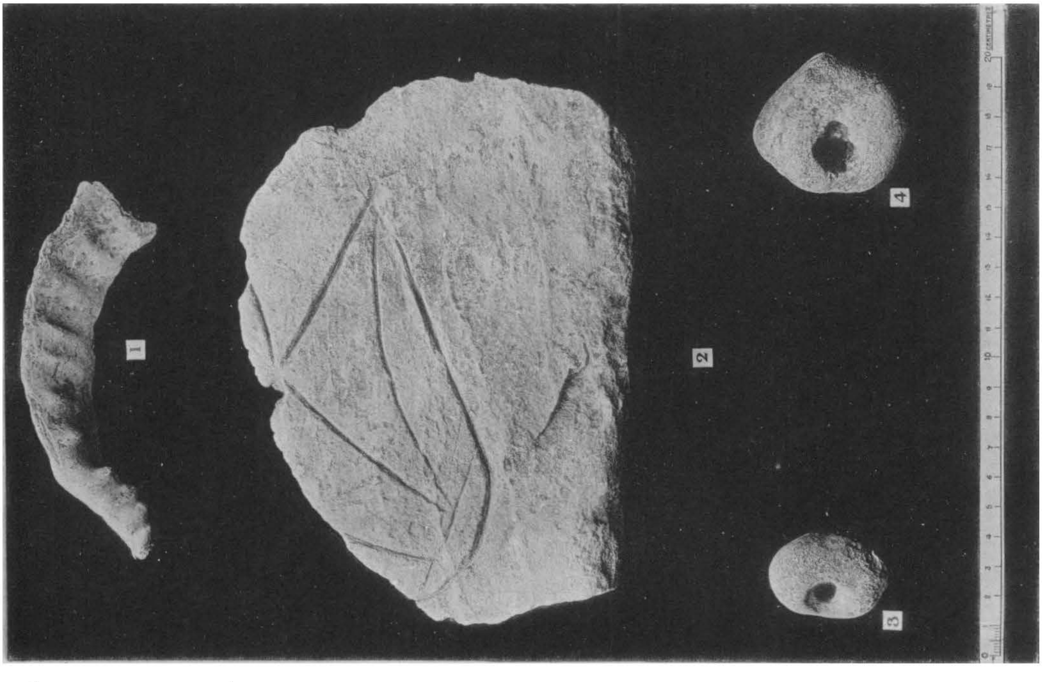


Fig. 1. — Small objects from Hagiar Kim.

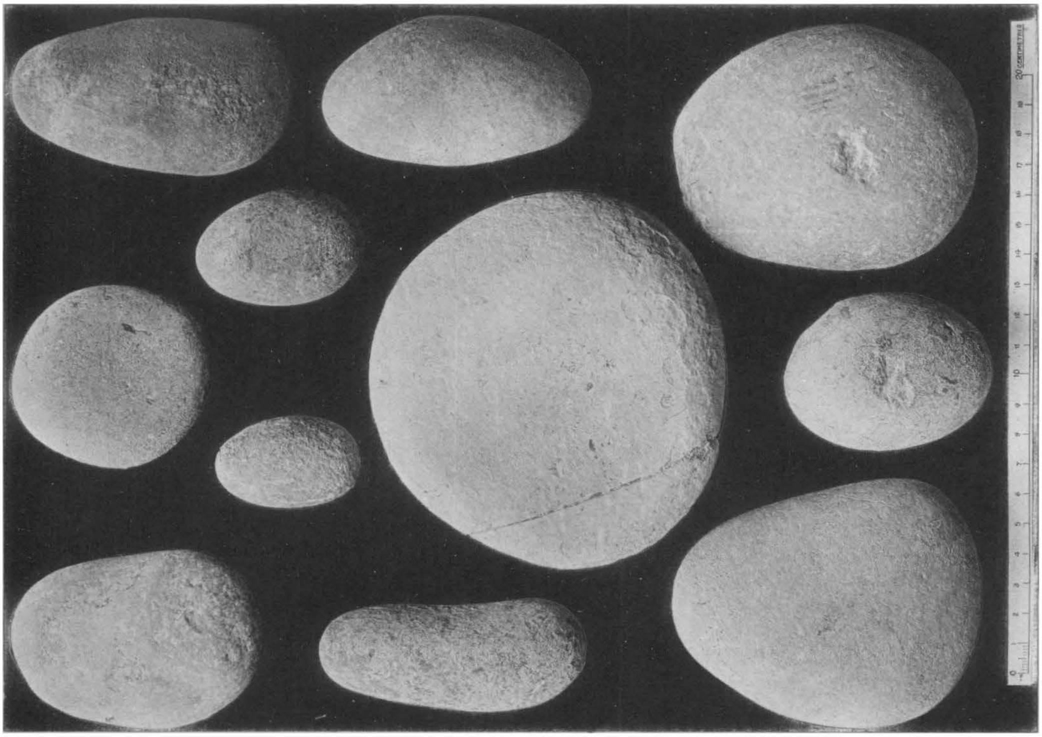
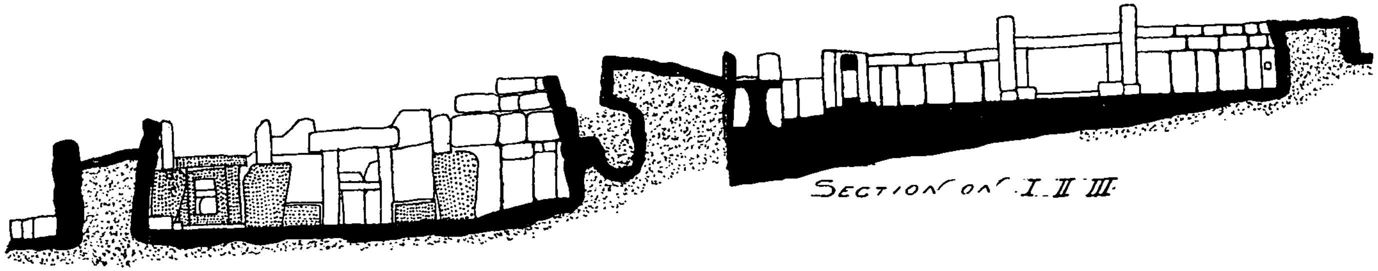
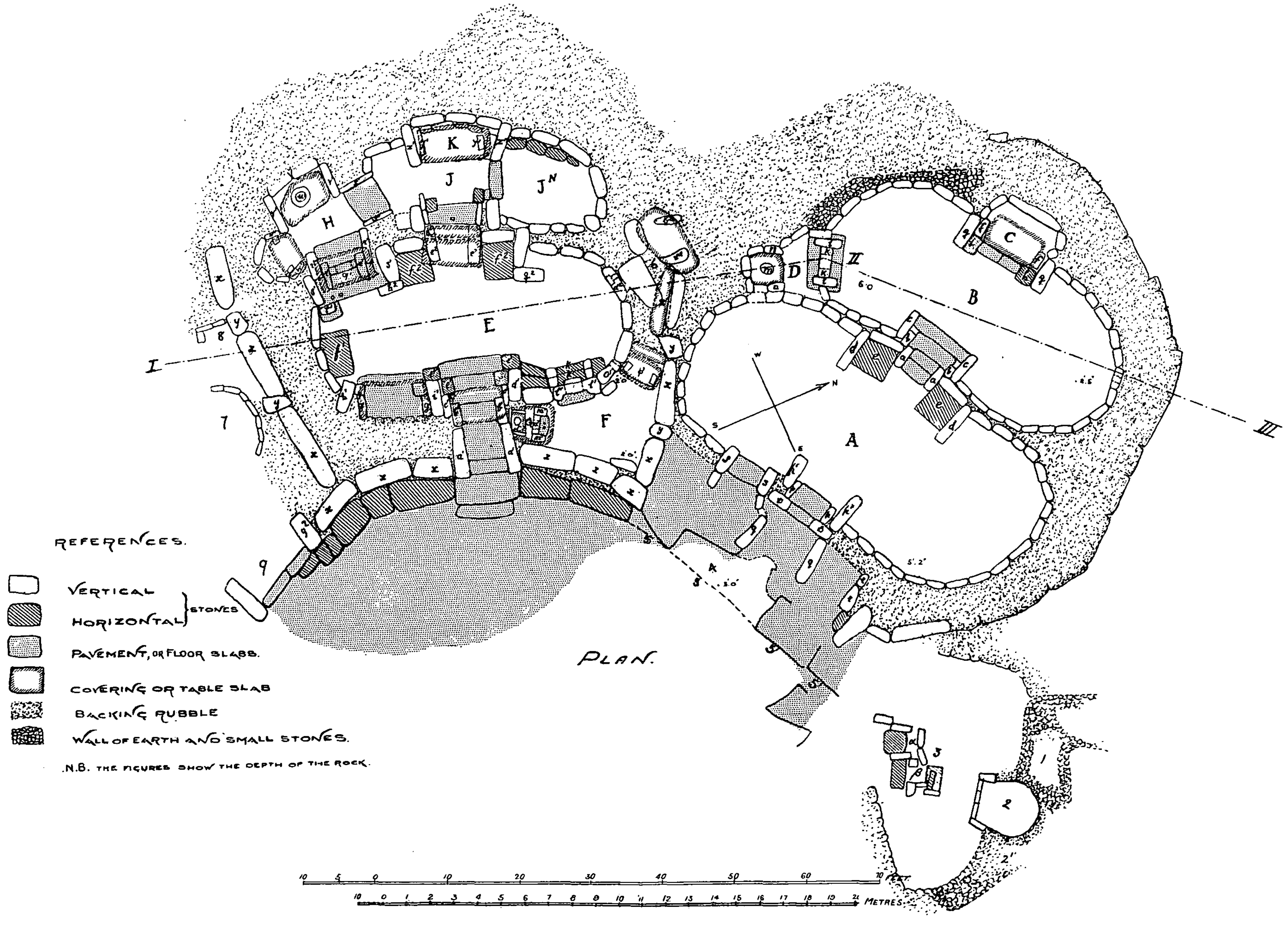


Fig. 2. — Objects of stone from Hagiar Kim.

PLAN AND SECTION OF MNAIDRA DRAWN AFTER THE EXCAVATIONS OF 1910.





Whiteman & Bass, Photo-Litho, London.

Fig. 1. — Mnaidra, façade of upper building from without.

Fig. 2. — Mnaidra, entrance to A at *VV*, from within.

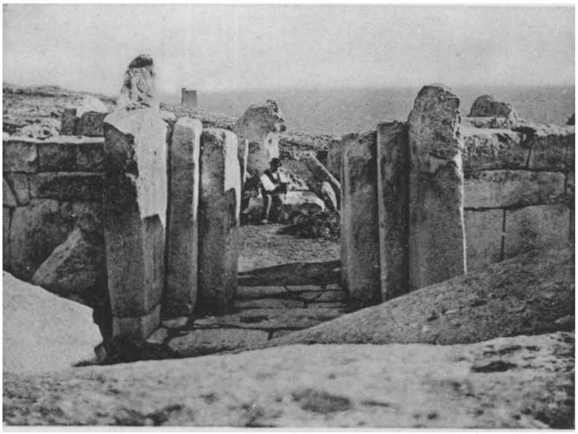


Fig. 1. — Mnaidra, entrance to A at *SS*, from within.

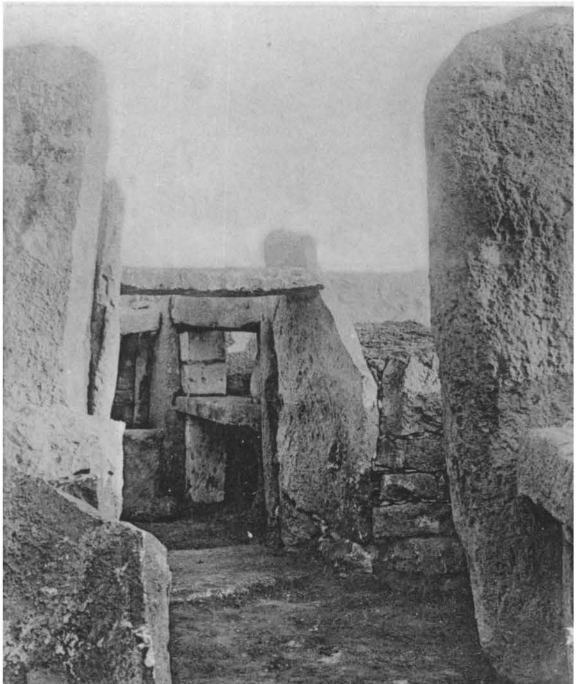


Fig. 2. — Mnaidra, niches in H.

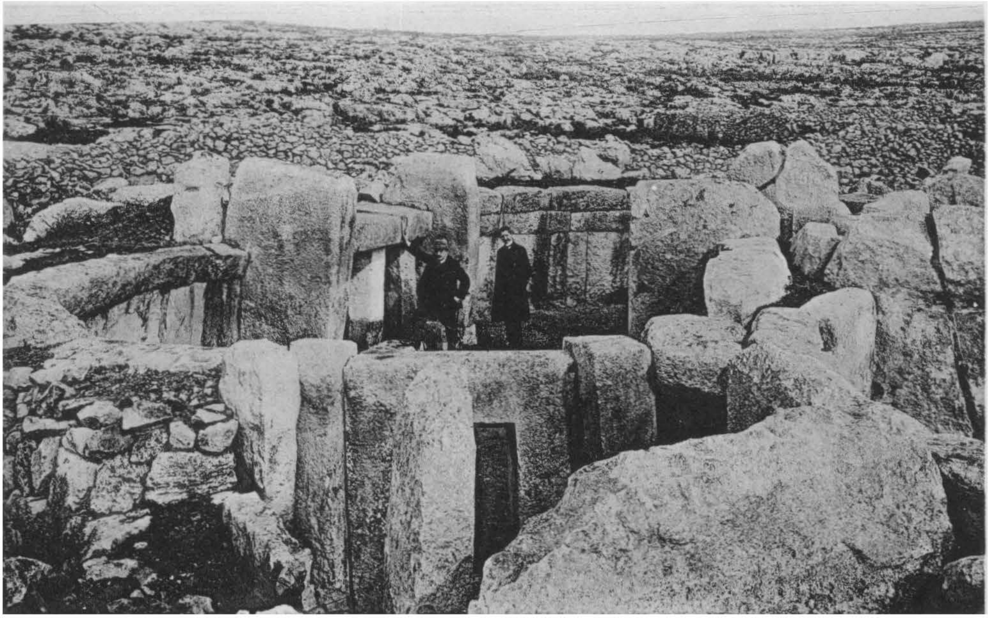


Fig. 1. — Mnaidra, B and C.

Fig. 2. — Mnaidra, façade of lower building.

Fig. 1. — Mnaidra, north apse of E.

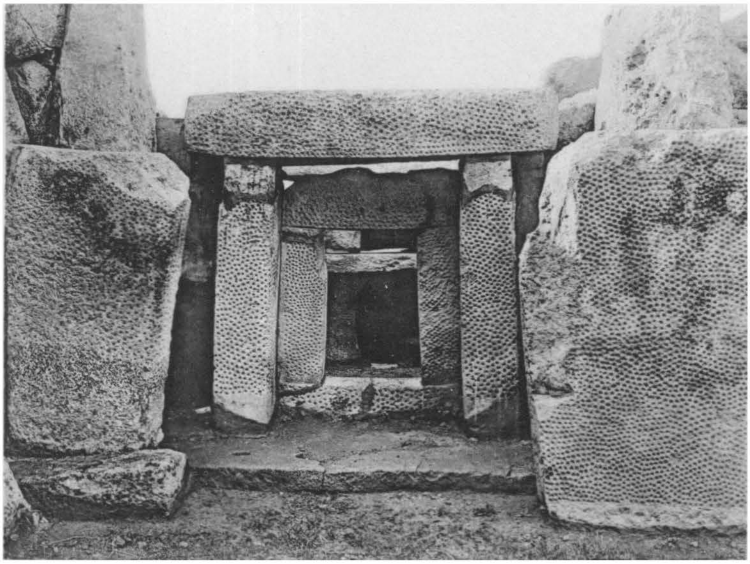


Fig. 2. — Mnaidra, entrance to H.

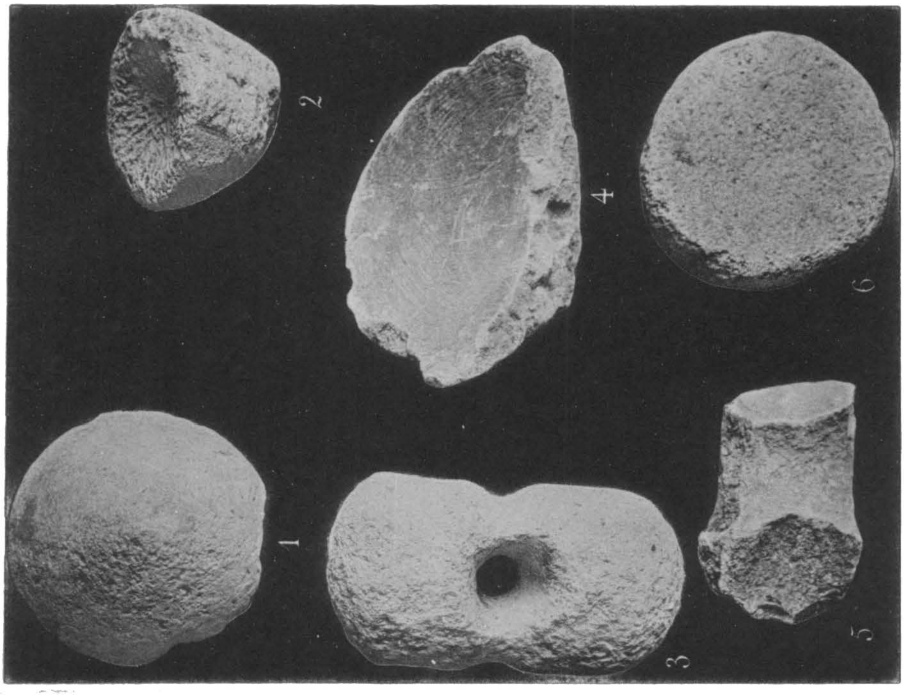


Fig. 1. — Objects of stone from Mnaidra (scale 1/3).

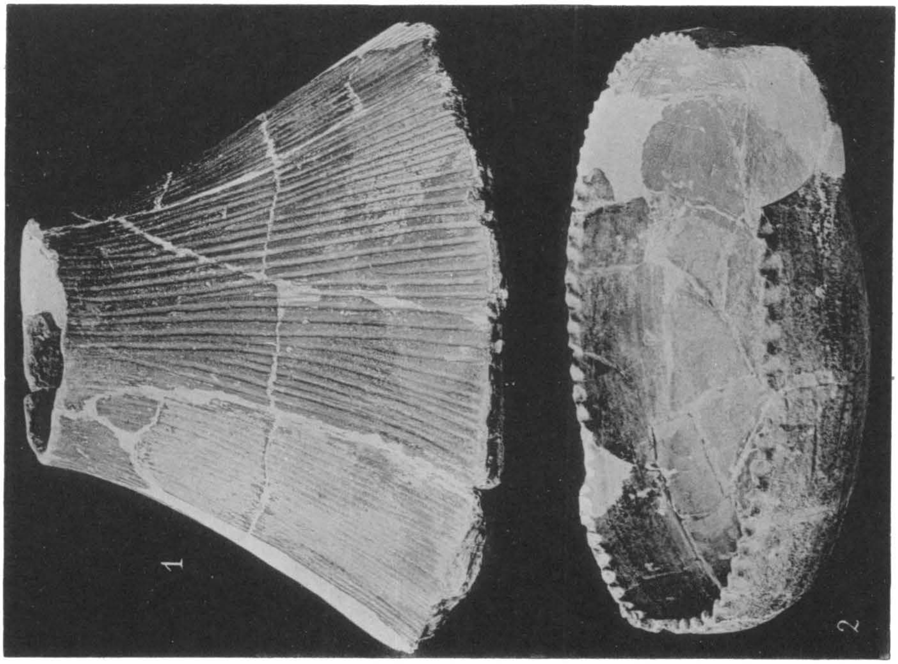


Fig. 2. — Vases from Mnaidra (scale 7/25).

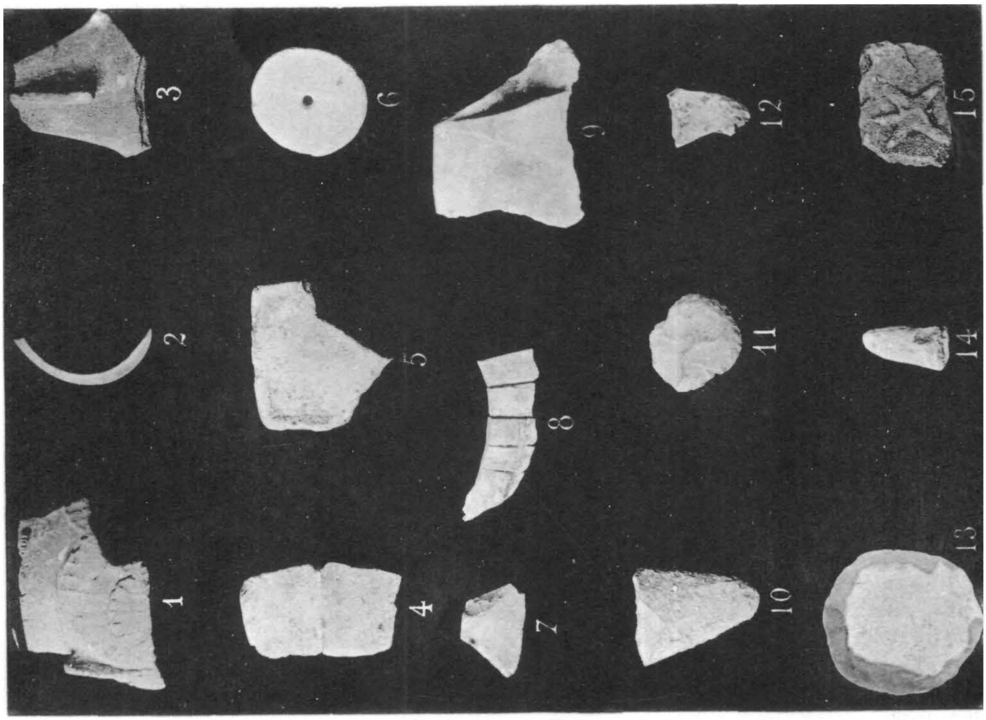


Fig. 1. — Pottery and small objects from Mnaidra (scale 1/4)

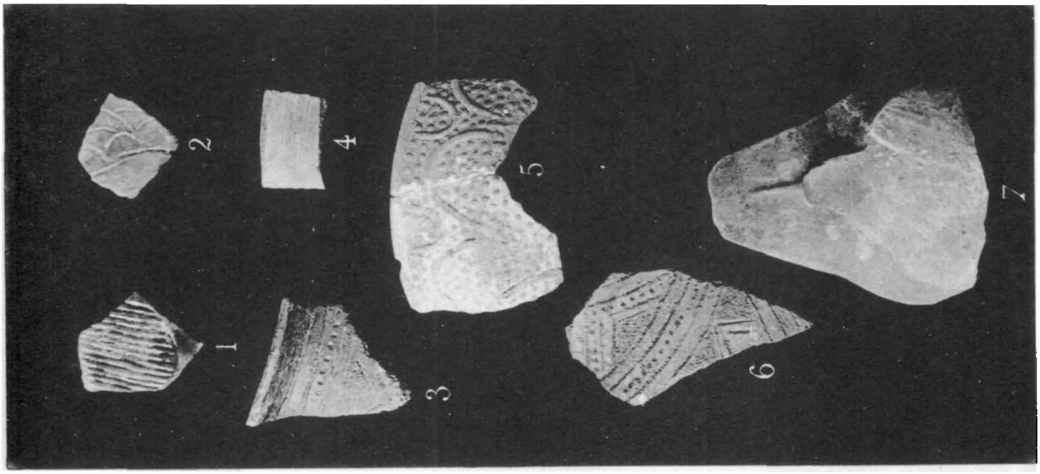
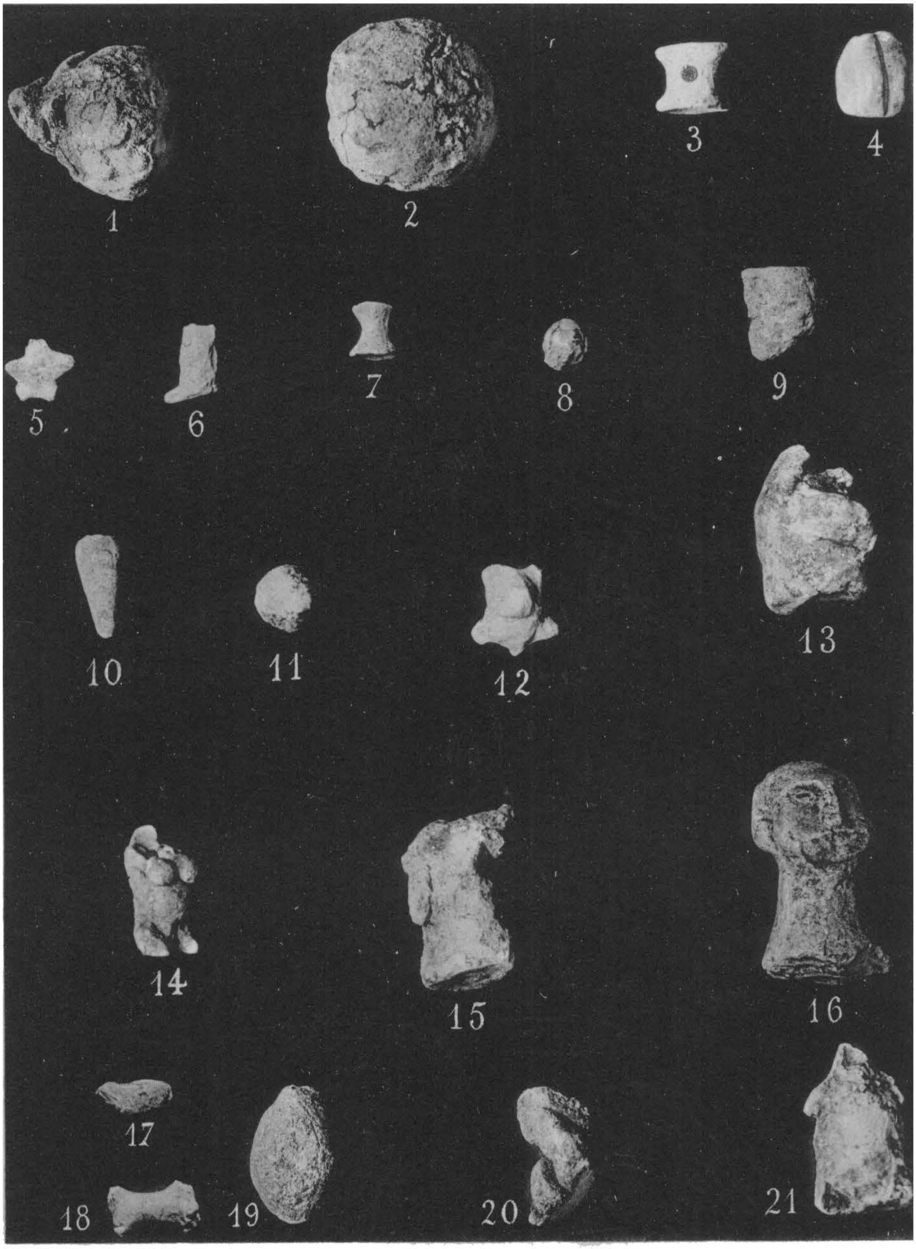
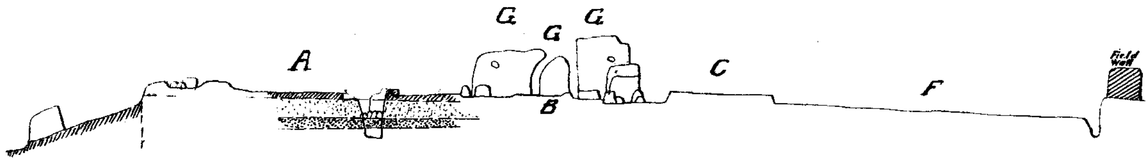


Fig. 2. — Pottery from Mnaidra (scale 1/4).

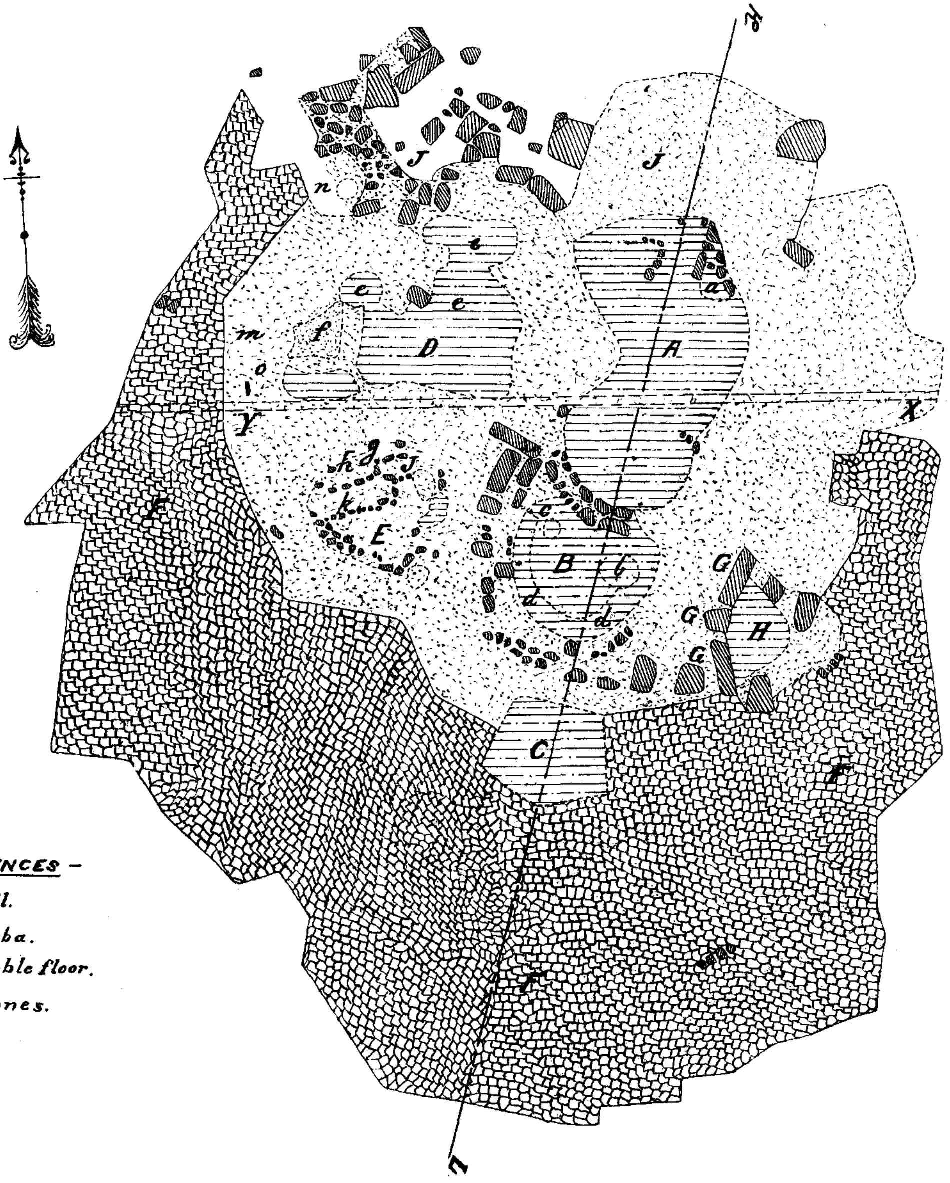


Votive terra-cottas from Mnaidra (scale 1/2).

PLAN AND SECTION OF THE NEOLITHIC STATION OF "SANTA VERNA" AT HAGHRA, GOZO.

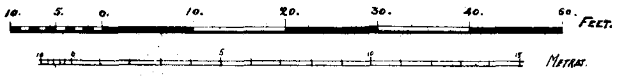


— *Section K.L.* —



—References—

- = *Soil.*
- = *Torba.*
- = *Cobble floor.*
- = *Stones.*



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